VOL. XXXI.
No. 6

SEPTEMBER, 1907.

$3.00 per Annum.
Single Copies, 25 Cents.

AMERICAN VETERINARY REVIEW

UNIV. OF CALIFORNIA
VETERINARY

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The AMERICAN VETERINARY REVIEW is issued on the 1st of each month. *Manuscript and copy for insertion should be received by the 20th of the preceding month* to insure insertion in the next month's number. *Volume commences* with April number.

Communications relating to business (subscriptions, advertisements and remittances), should be addressed to

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509 West 152d St., Boro. of Manhattan,
NEW YORK CITY.

Communications for publication or in relation thereto, should be addressed to

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710 East Second Street, Boro. of Brooklyn,
NEW YORK CITY.

European Exchanges, books for review and personal letters should be addressed to
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AMERICAN VETERINARY REVIEW.

SEPTEMBER, 1907.

EDITORIAL.

"REVIEW" VOLUME NOW OF SIX NUMBERS.

The phenomenal growth of the AMERICAN VETERINARY REVIEW has compelled the publishers to divide the yearly volume into two sections. Therefore, Vol. XXXI. will close with this September number, and Vol. XXXII. will begin with October. The necessity for this step has been apparent for some time, although the departure from the old established system has been delayed from lack of courage to violate tradition. Recent volumes when bound are unwieldy and not convenient for the library. For instance, Vol. XXVIII. contained 1,236 pages, Vol. XXIX. 1,450 pages, Vol. XXX. 1,526 pages, and it now appears that Vol. XXXI. would (if run through until April) be still larger. To continue under the old system meant one of two things: the production of a yearly volume too large for practical library purposes, or a curb to our ambition to give the profession the greatest monthly visitor in the world. The former proposition was rejected; the latter was impossible. Therefore, the semi-annual volume imposed itself without an alternative.

There will be no change in the price, which will remain three dollars per annum, the subscriber receiving *two* volumes instead of one, each of which will be as large as those of a few years ago, and about the size of other veterinary publications requiring twelve numbers for a volume.

The REVIEW congratulates the profession of the Western Continent upon the fact that *they* have built up the *largest* veterinary periodical in the world, and, by the testimony of thousands of readers, the *best* journal from every standpoint. From

month to month little extracts from many of these signed letters have been published as an encouragement to the real makers of the REVIEW—the contributors. In appreciation of the success which has crowned their efforts, the publishers have recently instituted mechanical improvements which will result in the coming volume being typographically as good as the best.

With every detail to make perfection in journalism in first-class order, we may look into the future with optimistic eyes, and believe that the REVIEW's glorious past will be an inspiration for a glorious future.

Many years ago the REVIEW declared that it would be just what the profession made it, and pledged its word that the more success it met with the greater journal it would be; that whatever success came to it would be reflected in its increased excellence. The publishers have no hesitancy in placing before the veterinary profession the closing volume as a plain statement of their stewardship.

EUROPEAN CHRONICLES.

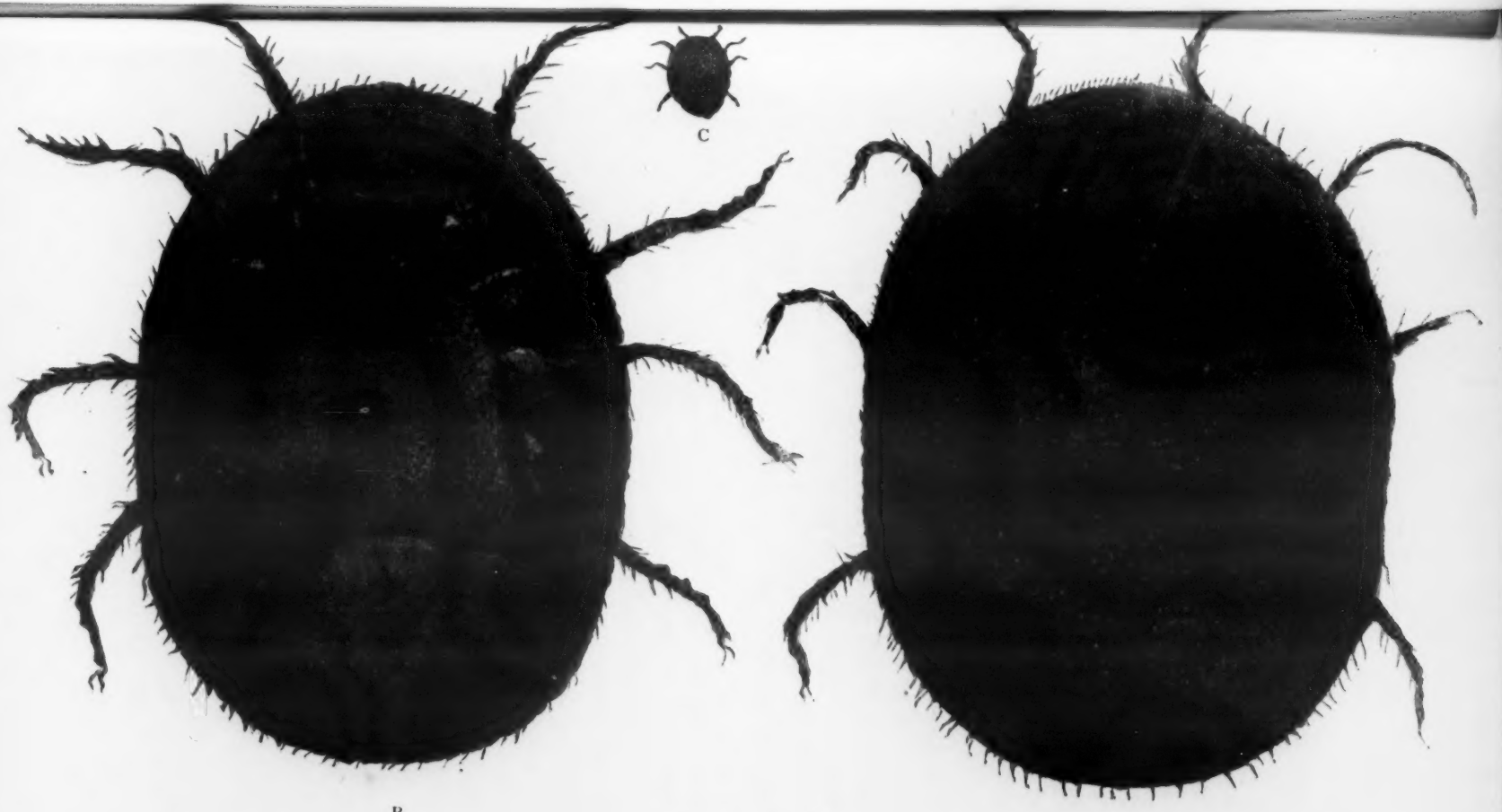
PARIS, FRANCE, JULY 15, 1907.

TWO NEWLY-DESCRIBED TICKS.—Now that the part that ticks play in the pathogeny of some of the diseases of domestic animals has been demonstrated a scientific fact, veterinarians can no longer remain ignorant of their natural history and of their existence, and any newcomers added to the long list of those already known will necessarily impose a certain amount of interest. It is on that account that the relation made in the *Transvaal Agricultural Journal* of April last, by C. W. Howard, B.A., on "Two Little-Known Ticks of the Transvaal," deserves to command the attention of entomologists and also of veterinarians. The illustrations that we herewith reproduce from the article show the external appearance of these two new ticks, which I am told by entomologists here have never been seen by them, and of which I have found no mention anywhere else.

The Fowl Tick.

(*Argas persicus*).

A. Dorsal (upper) surface.
B. Ventral (lower) surface.
C. Eggs, much enlarged.
D. Tick, natural size.



The Tampan.

(*Ornithodoros savignyi cœcus*).

A. Dorsal surface.

B. Ventral surface.

C. Tick, natural size.

These ticks are the fowl tick (*Argas persicus*) and the Tampan (*Ornithodoros savignyi cœcus*).

The first is very common in South Africa, Australia, India, Southern Europe and Persia. In the latter country it was first found and described, and wonderful stories are told of the prevalence of them in the houses, where they make it necessary for the inhabitants to move frequently in order to escape their attacks. The bite was supposed to be poisonous and to always result in death. In South Africa they bite people, but beyond this annoyance, no harmful results seem to follow. The tampan is closely related to the fowl tick, but it differs from it much by being larger, longer and not as flat. It is a great nuisance to people. It conceals itself under the bark of trees or in dry sand, while the fowl tick is concealed in the walls of the fowl-houses. The tampan bites are injurious, as they cause much inflammation, soreness and swelling. The fowl tick offers more interest to the veterinarian, as the damages resulting from its presence are better known.

In animals, the fowl ticks attack fowls, chickens, ducks, turkeys and pigeons. Ostriches and canaries have also suffered on a few occasions. It is not uncommon to hear of fowls dying daily in large number. They seem free from disease and no cause can be found for such an epidemy. However, a post-mortem reveals the fact that none or very little blood is left in the fowl, and upon searching the cracks of the walls of the chicken-house, the cause is easily found in the numerous bedbug-like creatures, hiding away from the daylight and each swollen to its fullest extent with blood. The fowls have simply died from loss of blood, which the ticks have sucked from them. It is probable that these ticks may transmit some infectious diseases of fowls.

The fowl tick resembles a bed-bug very much in shape. Its body is very flat, elliptical in shape, light-brown in color when empty and dark-bluish-gray when swollen with blood. Unlike the cattle tick, there is no hard, shiny shield upon its back, and the head is not on the front edge of the body, but on the under

surface, just in front of the first pair of legs. The whole body is covered with a soft skin. The vitality of the adult animal is remarkable. They have been known to live in a vacant fowl-house as long as 37 months without food and they may be kept in an air-tight box 27 months and survive.

* * *

SYNOVIAL FOSSÆ.—A very interesting subject of anatomical importance was agitated a short time ago at the Société Centrale de Médecine Vétérinaire by the Professor of Anatomy of the Alfort School, Director Barrier, in relation to some peculiarities of diarthrodial articular surfaces, and especially the synovial fossæ. What is a synovial fossæ?

At first and before answering that question, Mr. Barrier said that they do not seem to exist in the human, or that, at least, classical works did not mention them. But such was not the case in veterinary subjects; and then references were made of the works of Chauveau and his collaborators. Then Mr. Barrier gave the definition as follows: They are "completely isolated in the middle of the articular cartilages, forming depressions, always well circumscribed, but varying in their extent, their form and even their situation. At their bottom they are lined by a fine synovial membrane, lying on the bone or a little adipose tissue. These are the fossæ that practitioners may have mistaken for articular lesions."

"For the present," adds the Professor, "we believe that true synovial fossæ exist in horses only and in the humero-radial and the tibio-tarsal joints." "We have not observed clearly this anatomical peculiarity in any other joints;" . . . "they ordinarily repeat themselves on both opposite cartilage surface of a joint."

Why all that? Probably because in March last a specimen was exhibited, which showed that the superior extremity of the radius and that of the cubitus were the seat of lesions of ulcerative arthritis, characterized by the disparition of the median ridge, which in the normal state divides the radial surface in two parts

and with also the destruction of the cartilage covering the sigmoid notch of the cubitus. The history of the case was curious. The animal had been bought a few months before, when after a short time he suddenly became lame forward. Periostitis was suspected. Firing and blistering were resorted to, but with no permanent result; the lameness removed temporarily, returned when the horse was put to work. Ultimately the animal died from intestinal hæmorrhage and post-mortem of the leg revealed the lesions alluded to above. Were the lesions those of arthritis, or was it a synovial fossa? Similar errors have been made before, practitioners having taken for ulcerations what were fossæ and *vice versa*. The question must be studied and researches are being made to solve the question.

It may not be out of place, however, to look a little more on the problem as presented by the Honorable Director of Alfort. And to the question of Prof. Barrier, I feel inclined to answer Yankee fashion," and say: (1) Is there such a thing as synovial fossæ, as they are understood to-day; and, again (2), is it possible to make an error between them and an ulceration of arthritis?

Let us consider the first. It is said that only equines, horses, have synovial fossæ. Let us admit this as correct. But if so, why is it that the presence of synovial fossæ is not recognized by all veterinary anatomists?

Among the French: Girard in his edition of 1807 says nothing of them in his osteology and his arthrology.

Rigot in 1840 writes: "Hollowed in the very center of the rubbing surfaces, synovial fossæ represent kinds of little round cups which the diarthrodial cartilage stops suddenly"; and, again, at the article on scapulo-humeral joint, he says: "On the articular surface of the scapula, the cartilage that covers it is quite often showing a synovial fossa." He also mentions one on the humeral surface of the shoulder joint and on those of the elbow. For the hock joint, Rigot mentions one on the ridge of the tibial surface, but none on the astragalus.

Chauveau, whose superior work has had many editions and has been translated into several languages, says nothing of them in osteology, but in syndesmology they are noticed. For instance, for the shoulder joint, the glenoid cavity of the scapula has one, although the humerus has none. In the elbow joint the articular surfaces of the three bones (humerus, radius and cubitus) have one. In the hip joint, one is in the cotyloid cavity and none on the femur. In the hock joint, one is on the tibia and none on the astragalus.

Among English authors, let us see. Nothing is said in the description of the surfaces by which these bones correspond: in Percivall's anatomy, nor in Stangeway's. Steele in 1876 said, speaking of the inferior extremity of the humerus: "In the center of the articular surface is a roughened depression with round edges. This must not be mistaken for an ulceration." With this exception, nothing is said for any other articular surfaces. Of course, in the translations of Chauveau, we must find what exists in the French text. Yet nothing is found in the osteology, except in one of the illustrations, which is marked "fossa." The same absence of notice of these fossæ is observed in the syndesmology, with the exception that one is mentioned on the bones of the elbow and also one on the ridge of the tibial surface on the inferior extremity.

Among the Italians, Prof. Mongiardino in the most recent work on anatomy ignores the synovial fossæ, although he makes mention that at times one may found in the scapulo-humeral joint.

Of German authors, I can only refer to the anatomy of F. A. Leigh, which ignores them entirely.

It seems from the inquiries among the works on anatomy through the world, that while the presence of the synovial fossa is accepted by modern French classical works, they are ignored in those of other countries—and that, contrary to the remarks of Prof. Barrier, so-called synovial fossæ have been spoken of in other joints than the elbow or the tibio-tarsal; and, again, that

while they may exist on one of the articular surfaces of a joint, there may be none on the other, instead of "ordinarily repeating themselves on two opposite surfaces," as he claims.

But let us admit the existence of synovial fossæ! Is it really possible to make an error and to take a cartilaginous ulceration for one of these peculiarities of articular surfaces? It seems that close examination ought to be sufficient to guard against such an error. The description given by Prof. Barrier and the aspect presented by an ulcerated diarthrodial cartilage ought to settle the question, without requiring such minute examination, and be sufficient to vanish all possibility of mistakes. And if this is not enough, I will gladly refer every one to the work of Percivall on "Lameness," where, at pages 54 and 78, will be found real reproductions of ulcerated cartilages, which will show that only the grossest carelessness might explain a mistake. But it is not every one who will take stock in works written sixty years ago.

* * *

Diagnosis by Local Applications of Tuberculin.—What is *Cuti-reaction?*

It is the name that Prof. Vallée, of Alfort, proposes for a new method of diagnosis for tuberculosis.

Some months ago an Austrian physician, Dr. Von Pierket, published a new mode of diagnosis of tuberculosis with tuberculin. Attached to a children's hospital, he had observed that if scarifications were made on the skin of tuberculous children and coating these over immediately with tuberculin, after twenty or thirty hours there would appear on the places so treated pustules which resembled those of vaccination. On the contrary, the same operation, carried on children exempt from tuberculosis, no eruption would follow. According to the Austrian doctor, this reaction would be less marked on adult carriers of tuberculous lesions than in children.

Prof. Vallée has made known the very interesting results that he has obtained in experimenting with about forty animals, either free or suffering with tuberculosis, and it seems very prob-

able that the method can be of general use in veterinary medicine, without saying anything at present of the importance that it may have in the prophylaxy of the disease. It is, however, necessary that a greater number of experiments should be carried out before deciding upon its general use. The application of the method is as follows:

(1) Select for the seat of the scarifications a region of the animal which it cannot reach with its teeth, horns or feet—the poll of the neck or the withers are possibly the best sites.

(2) Shave the spot, clean it minutiously and scarify it not too deeply, quarter of the thickness of the dermis. Too deep scarifications mean failure.

(3) With a small paint brush, such as one used for water coloring, dipped in a slightly diluted solution of pure tuberculin, paint the scarifications over. The dilution of the tuberculin has for object, to reduce the caustic action of the glycerine, conservating agent of the tuberculin.

In operating in this manner, Vallée has observed:

(1) That no papulæ will appear on subjects free from tuberculosis, except rarely a slight superficial inflammation, which subsides rapidly.

(2) That with tuberculous individuals, the alterations on the skin will appear only twenty-four hours after the operation, and a manifest cutaneous reaction appears. The skin, on each side of the scarifications, thickens and is infiltrated, forming a painful, gray-reddish ridge of varying thickness, according to the severity of the reaction. If the scarifications have been too close to each other, it produces a true patch of skin, œdematous without suppleness and very painful. This lesion is in full development from the thirty-sixth hour, is at its maxima towards the forty-eighth and still exists after four or five days. The scarifications become surrounded with the appearance of papules, which may be so intense that they look like the warty tuberculous eruptions of human skin. These lesions last several days and the cutaneous reaction has its demonstrative value for ten, fifteen or twenty days.

(3) Cuti-reaction does not occur in tuberculous subjects if the coat of tuberculin is put over the skin only irritated by the shaving of the hairs but not scarified.

(4) The cuti-reaction and that following hypodermic inoculation of tuberculin correspond to each other. Marked cuti-reactions are found in animals that react well with the test by cutaneous injections. In neither of the reactions does the intensity correspond to the severity or extent of the lesions existing.

(5) Cuti-reaction is not so well marked upon bovines which have received at the same time tuberculin by cutaneous injections and by scarifications.

(6) Bovines in full cuti-reaction since five days have given, on the contrary, splendid thermic reaction with the test by injections applied then to them.

(7) Tuberculous bovines seem to obtain a true accoutumancy to the cuti-reaction test, as it is necessary to permit several weeks to elapse between two successive operations to obtain a result.

Cuti-reaction offers to the experimenters a wide, unexplored field for the study of a new process for the diagnosis of various infections with the extracts of microbian cultures. Prof. Vallée has already realized in that direction interesting attempts concerning the diagnosis of glanders. Brute mallein applied, after dilution in its volume of boiled water, upon cutaneous scarifications on the neck of horses free from glanders gave no reaction, while applied on three glanderous horses it very rapidly was followed, in nine hours, by a local œdematous swelling, painful and well marked. But contrary to the cuti-reaction obtained with tuberculin, which lasts so long, with mallein it disappeared quite rapidly.

The question then remains open and can be studied by those who may have the chance of seeing many animals suffering with that disease.

VALUE OF ANTITETANIC SERUM.—The question of the application of serotherapy in the treatment of tetanus in man by the use of antitetanic serum has been the object of long discussions at the Société de Chirurgie in Paris. The opinions advanced varied very much. One of the celebrated surgeons of this city declared himself as a firmly convinced adversary of this mode of treatment. Another of no less reputation recorded several cases where the treatment had utterly failed. For another, although it was proved by statistics that the disease was comparatively rare, even then the fatal cases were as numerous as before. Finally, a few advocated the treatment.

The President of the Society resumed the discussions in dividing the members present into three classes: those that were advocates of the treatment, those that were sceptic and those that were opposed to it. The majority of surgeons will continue to make injections of serum, taking for ground that in ten recent cases of death the injections had not been made, and claiming that if they had the result might have been different. It was difficult to calculate the value of the treatment, unless the injections were made by the surgeon himself, otherwise there are no certainty that they ere given.

If, as it is claimed by some, veterinarians obtain good results, it may be because the serum used is taken from horses, and the question may be properly put if better results could not be gained in the treatment of tetanus in man if the serum of other animals than horses was used. The question is to be solved by investigations at Pasteur Institute, to which it has been referred.

It certainly will be interesting to know the answer from the Institute, and perhaps veterinarians may also get some positive statement in relation to the value of the antitetanic serum as a curative agent, so as to complete the valuable assistance that as a prophylactic it offers in our surgery.

* * *

VIRULENCY OF SALIVA OF RECOVERED RABIES.—A very important question has been raised by recent communications made

by Prof. Dr. Remlinger, Director of the Pasteur Institute of Constantinople, before the Société de Biology and the Société Centrale de Médecine Vétérinaire in Paris, communications which, while they yet embrace observations made only on experimental hydrophobia, may after further studies extend to a wider field and modify general sanitary regulations concerning clinical or street rabies.

Roux and Nocard have demonstrated that several days before the apparition of the first symptoms of rabies the saliva of dogs was already virulent. Dr. Remlinger calls the attention to a phenomena somewhat completely opposite, viz., the persistency of the virus in the saliva of a recovered animal. Of course, it is meant in cases of experimental hydrophobia.

It is already known that this form in dogs is susceptible of recovery. Several authors, and among them Dr. Remlinger, have published records which prove it. A new case is brought to sanction it. A street dog is inoculated on the 27th of September, 1906. Remains in perfect health until Oct. 23. On that day, rather sudden appearance of rabies with mixed manifestations, raging and paralytic, access of rage, tendency to bite, typical bitonal voice, paresis of the hind legs. After two days the first symptoms subside, but the paralytic phenomena are more marked. Paralysis of the four legs and of the muscles of the neck is more complete. A fatal prognosis is indicated. Yet, on the 25th of October, the paralysis diminishes and the dog, which for the last five days had eaten nothing, begins to drink. Improvement continues and on the 5th of November the animal can be considered as entirely recovered.

Every three or four days from the 30th of October to the 20th of November, a little ball of hydrophile wadding, moistened with sterilized water and held with a pressure forceps, has been carried in all directions within the mouth of the dog, and the saliva thus obtained has been inoculated into the muscles of the neck of guinea-pigs. With what results?

On October 30th two guinea-pigs are inoculated; one dies with rabies on November 28th. On November 4th two pigs

and a rabbit; one of the pigs dies of rabies on December 1st. On November 8th, of two pigs, one dies of rabies on January 10th. On November 13th, 15th, 20th, two, two and three guinea-pigs are inoculated, with negative results.

Conclusions derived from the above summary:

The dog had evidently rabies, as of the two guinea-pigs inoculated the 30th of October, one died with paralytic rabies 29 days after. The rabid virus has lasted in the saliva five days at least after the recovery, as one of the guinea-pigs inoculated with saliva obtained on the 10th and inoculated that day died with rabies 61 days after. It is very probable that five days is below the reality. Indeed, no inoculation was made on the 11th and 12th of November, say the 6th or 7th day after complete recovery, and one guinea-pig of those inoculated on the 13th died with doubtful causes.

Recovery of clinical rabies in dogs is not recognized by veterinarians, or at least has not been positively recorded. There are many reasons to believe that the two forms of varieties of the disease may after all act in the similar way to the point of view of the prognosis. And if so, there is but one step to accept the idea that street or clinical rabies is liabile to recovery. Admitting it to be so, what will become of the principle generally adopted that a suspected dog can be relieved from observation if not dead after two or three days, and the possibility of its being still a great deal more dangerous animal with a saliva which can remain virulent, say, even *five* days, after his apparent recovery?

There is evidently a very important question rising from the discovery of Prof. Remlinger!

* * *

Bibliography.—To the already long list of works that the "Encyclopœdie Vétérinaire" possesses, another has just been added. "The Surgical Pathology of Joints of Domestic Animals" (La pathologie chirurgicale des articulations des animaux

domestiques). Prof. C. Cadéac is the author. The publishers, J. B. Bailliere & Sons, 19 Rue Hautefeuille, in Paris.

With this work Prof. Cadéac keeps up the series of his undertaking. After having published the General Pathology, that of the foot, the surgical pathology of the skin and blood vessels, that of the tendons, muscles, nerves, each of which form a volume of great value and interest, and which it has been our pleasure to present to our readers in previous notices, he now publishes the Pathology of Joints. Printed and bound in the same form as its predecessors, this volume, in 18, contains 468 pages and has 148 illustrations. The contents are divided into three principal chapters:

(1) Diseases of the serous bursæ, with their traumatic lesions, the various wounds, the hygromas in general and according to seat.

(2) Diseases of tendinous sheaths, considering the various traumas and including synovitis and tendo-synovitis.

(3) Diseases of joints proper—sprains, luxations, articular bruises.

To each section the author has taken into consideration one apparatus after another, and he has made full description of the various affections as they presented themselves in order, the classification adopted being arranged according to anatomical order. As in his previous works, Prof. Cadéac has successively considered the diseases in a differential manner according to the various species of domestic animals—solipeds, ruminants and then dogs. In this way the description forms a pathology for each animal. This method, followed in all the books of the Encyclopœdia, is certainly very advantageous, as it permits of an easy comparison of each animal.

There is no doubt that the work will command the attention of our *confrères* who read French, and it can be hoped that some good worker will undertake the task of its translation.

To complete these bibliographic notes, I must mention: From the Bureau of Animal Industry Bulletin No. 99, on the

"Danger from Tubercle Bacilli in the Environment of Tuberculous Cattle," a very interesting subject treated by E. C. Schroeder and W. E. Cotton; Bulletin No. 109, where Dr. G. B. Morse gives a valuable preliminary report on "Quail Disease in the United States"; Bulletin No. 110, giving the various "Methods of Eradicating Cattle Kicks," by Dr. L. A. Klein, illustrated. Dr. W. Reid Blair, of the New York Zoölogical Society, has sent me his illustrated report on "Actinomycosis in Black Mountain Sheep." From Dr. A. Peters I have the semi-annual report of the Cattle Bureau of Massachusetts. Finally, from Chicago, the "Bulletin of the Chicago Veterinary College" and the "Journal of the McKillip Veterinary College Alumni Association." A. L.

MINNESOTA TO THE FRONT.

The conspicuous example of Pennsylvania Veterinarians in framing and securing the passage of wise laws governing animal diseases and safeguarding her live-stock interests, at the same time advancing the cause of veterinary education and practice, has drawn the attention of the whole country. While there is not a veterinary heart that does not throb with pride and pleasure at their splendid achievements, one of our esteemed collaborators, Dr. M. H. Reynolds, gives our readers elsewhere an interesting account of what Minnesota Veterinarians have done in recent years along similar lines, and proudly lays claim to first position among States in the wisdom and quality of its veterinary laws. The REVIEW welcomes this rivalry with enthusiasm, and would be glad to see it extend to every State in the Union.

Once the Empire State was the leader in all movements looking to the advancement of the veterinary cause. It was she who secured the first act recognizing the veterinary profession; her schools were once the criterions for all others to follow. But by an unwise and radical leap, she closed her career as a leader, and rapidly dropped to the extreme rear of the line of States in

which the profession has been legally recognized. While some States having fewer veterinarians than may be found in a single borough of New York City have a State Veterinarian in charge of the diseases of animals, the Empire State has none, and while its *laws* prohibit from practice veterinarians acceptable to such States as Minnesota and Pennsylvania, its *lack of laws* permits men to practice here who are debarred from every other State. Therefore while we applaud the grand achievements of the veterinarians who have done so well in other States, we draw particular attention to them at this time in the hope that their example may serve as an inspiration for the members of the New York State Veterinary Medical Society at its approaching meeting to make an earnest effort to regain the lost prestige of the Empire State.

LAST WORD BEFORE KANSAS CITY.

The August REVIEW gave its readers the full program of the great veterinary convention which will be called to order at Kansas City on the 10th of this month. Every prospect pleases for a gathering of veterinarians from all over the North American continent such as has never before been recorded, and which is destined to do a great service in extending the influence of the National organization, in ennobling the professional spirit, and in adding to the personal pleasure and profit of those who attend. Arrangements for the perfect working out of the splendid program are excellent and adequate, and the REVIEW offers its congratulations upon the promises which they portend for a glorious season of reason and relaxation.

The October REVIEW will contain an accurate and full account of all that transpires, so that those who are prevented from actual attendance may in a measure be recompensed for their great loss.

RECIPROCITY AMONG STATE EXAMINING BOARDS.

The story of "John Smith and His Misfortunes," which will be placed before the members of the A. V. M. A. at Kansas

City, is the recital of the obstacles which are encountered by a young graduate in veterinary medicine who wishes to locate in a profitable field to pursue his professional career, and, not finding it to his liking, seeks to change to another State, and, finally, not being adapted to private practice, endeavors to devote his talents to the service of the Government. While the hero of the story runs the gamut of all the difficulties that are likely to be encountered, the picture is not an impossible one, and it emphasizes the peculiar conditions which surround the young profession through the various State laws, debarring instead of inviting recruits of proper qualifications. It is commended to the Boards of Examiners, in the hope that a reciprocal understanding may be arrived at, whereby a graduate pronounced "right" by a reputable school, or a worthy Board, may have a passport to the professional guardians of every State in the Union.

VETERINARY GUARDIANSHIP IN NEW JERSEY.

A strong effort is being made in New Jersey to place all matters governing animal diseases and veterinary sanitary subjects with a bureau of animal industry under veterinary direction. The present system of dividing the responsibility among the Tuberculosis Commission, the State Board of Health, and the Department of Agriculture has proven inefficient. The proposition to place a veterinarian upon these various bodies as a compromise will be but a cheap makeshift and will not better conditions. They will be but a weak tail to a top-heavy kite, and the profession will be given credit for inefficiency through inability to accomplish any real reforms. Let the profession leave the responsibility where it is unless it can have a free hand.

THE man had just paid the veterinarian his bill. "Doctor, were you in the army?" "Oh, no; why do you ask?" "Well, I thought if you were, by the way you charged, the enemy would stand very little chance."

ORIGINAL ARTICLES.

THE PRACTICAL APPLICATION OF THE AGGLUTINATION METHOD FOR THE DIAGNOSIS OF GLANDERS.

By Cassius Way, B. Agr., A. B., D. V. M., Ithaca, N. Y.

From the Laboratory of Comparative Pathology and Bacteriology, N. Y. State Veterinary College.

The rapid strides which have been made in comparative pathology and bacteriology during the past few years and the diligent efforts among scientific investigators to bring to the front better methods of diagnosis which are comprehensive, rapid and accurate have been fruitful in supplying the wants of the practical scientific man or practitioner. Probably the most valuable to the clinician of these recent methods of diagnosis has been the perfection of the agglutination test for glanders to such a degree that its successful practical application is assured. This method for diagnosing glanders is used officially in Austria and Prussia, and Schutz and Meissner in Germany have been the leaders in perfecting it.

It was in the summer of 1905 that Dr. V. A. Moore of this college saw the possibilities and advantages of the method and immediately began a series of investigations into its practical use. During the year 1905-6 the results of the investigations carried out under Dr. Moore's direction seemed so sure of success that Dr. George H. Berns, of Brooklyn, through the kind assistance of Dr. Moore, fitted up a laboratory at his hospital in that city and thus made possible the practical application of this method in a large city practice and in a district extensively infected with glanders. During July, August and September 317 specimens of blood from horses showing unmistakable symptoms of glanders, others which were slightly suspicious on account of a persistent elevation of temperature and other conditions, and from still others which had only been exposed to

the disease and presented no symptoms whatever were subjected to the agglutination test with very satisfactory results. Since this time the application of the method has been continued with equally satisfactory results and the total number of cases examined increased to approximately 1,600.

It is, therefore, on account of the successful application of this method from a practical standpoint that I wish to present to you in this article the method of procedure which was followed, some of the advantages and some of the disadvantages of the method, and some of the problems which presented themselves in our work.

A careful review of the article entitled "The Agglutination Method for the Diagnosis of Glanders" presented at the meeting of the American Veterinary Medical Association in September, 1906, and published in the AMERICAN VETERINARY REVIEW for October of the same year, by Dr. V. A. Moore and Drs. Taylor and Giltner, gives a very concise and comprehensive review of the literature and history of agglutination together with a clear account of the technique of the method. It, therefore, seems unnecessary in this article to give in detail the technique.

Since 1889 it has been known that the serum from immune individuals or those suffering from an attack of certain specific diseases would, in the proper dilutions, cause a clumping or an agglutination of the organisms causing that specific disease when brought into contact with them under favorable circumstances. Furthermore, it has been found that the serum from normal individuals possesses, in very low dilutions, an agglutinating power for certain microorganisms. It is upon the phenomena of agglutination and precipitation that this method of diagnosis is based, for it has been found that the serum of glandered horses causes a very characteristic agglutination and precipitation of suspensions of *Bacterium mallei* in much higher dilutions than normal, 1 to 800 or 1,000, and in certain instances in very high dilutions, 1 to 8,000, macroscopically. Investigations have shown that the sera of normal horses or those suffer-

ing from other diseases will agglutinate this organism in most instances in dilutions of 1 to 200 and in some instances 1 to 300, 1 to 400, and in rare cases 1 to 500.

The microscopical agglutination occurs in much higher dilutions than in the macroscopical and the former method is used in some laboratories; however, we are of the opinion that the macroscopical test is much more practical and constant and of exceedingly greater value in diagnostic work. It has even been found, by Dr. Taylor of this college, that when the test fluid is placed in the incubator without any serum being added whatever that it will agglutinate to a slight degree as shown microscopically. Therefore, when agglutination is spoken of in this article it will refer to macroscopical agglutination and precipitation only.

EQUIPMENT.

From a careful review of this method it will be observed that it is almost imperative that, for its successful application, the operator must know something of the principles of bacteriology and laboratory technique. During the past year a number of commercial institutions have brought forward various kinds of apparatus and agglutometers for this work which, in the hands of the more scientific and better trained veterinarians may be a success, have yet to be proved of value to the average veterinarian. We believe this test to be pre-eminently a laboratory method and whether that laboratory is located in a university, city board of health, or in a private hospital for its successful operation it needs a hand trained to a certain degree of proficiency in this class of work. The time may come when the veterinarians will be trained sufficiently along these lines to warrant their use of the method much more generally than at present. However, for the time being, it seems best to leave its application and the interpretation of results to those prepared for the work lest through mistakes and misjudgment on the part of the operator the method may come into disrepute and be unjustly criticized.

The equipment needed for a thorough application of this test is not extensive. In the laboratory fitted up at Dr. Berns' hospital there are the following: An incubator about 18 in. square and two feet high for growing cultures and keeping tests at the proper temperature; a centrifuge for separating the serum and the other parts of the blood; a water-bath for killing the cultures at 60 degrees centigrade; test tubes; graduates and pipettes. In addition to this there was an equipment for making cultures and doing the bacteriological work which has, however, since last fall been dispensed with and the test fluid sent from this laboratory. The absolutely necessary equipment, therefore, is an incubator, test fluid, test tubes, graduates and a pipette (1 c.c. graduated to hundredths). Gas connection is desirable, but, if not possible, other means for maintaining an even temperature must be supplied. Running water is almost indispensable. The incubator need not be expensive and the size will vary with the amount of work to be done. The test fluid may be supplied from some laboratory. A 10 c.c. and a 60 c.c. graduate are very convenient sizes and the tubes should be about ½ x 6 in. and of a clear glass.

Test Fluid.—This is prepared by washing off the growth of a two-day agar culture with a sterile platinum loop into a solution of distilled water containing .85% sodium chloride and .5% carbolic acid. This suspension is then placed in a thermostat or water-bath at 60 degrees centigrade for two hours which kills the bacteria. It is then strained through sterile cotton and diluted with the carbolized sait solution until it is of a faintly cloudy appearance. The proper dilution of this suspension can only be determined by experience.

In connection with this test fluid or suspension it has been taken for granted that the culture must be passed through a guinea-pig about once in three weeks to maintain its agglutinating power and the fluid must be made up fresh when used. Therefore, the following questions presented themselves:

a. What generation of the culture is the best to use?

b. How can the agglutinating power of the culture be prolonged?

c. How long can a good reacting fluid be preserved?

Experience has shown that the second, third or fourth generations of the culture are best for making the suspension, and that if the number of generations are not increased and a stock culture of the second or third generation is used to make the cultures from which the suspension is prepared that the agglutinating power is prolonged from three or four weeks to as many months, thus obviating the necessity of frequently passing the culture through a guinea-pig. By this method of procedure the test fluid is always of the same generation and the power of agglutination not inhibited by an increase in the number of generations grown on artificial media. This, however, it is assumed has its limitations and the exact length of time that a culture will continue to agglutinate is yet to be determined.

In regard to the length of time that a good reacting fluid will continue to react several experiments have been made. Test fluid has been prepared at short intervals during the past year and found to react well. It was then kept under varying conditions, mostly at room temperature, and all tested with a good reacting serum, thirty-two samples in all, at one time. The following table gives a summary of the results:

TABLE SHOWING THE REACTIONS OF TEST FLUIDS OF DIFFERENT AGES WITH A GOOD REACTING SERUM.

(Tested April 17, 1907.)

No.	*Date of preparation.*	*Conditions of preservation.*	*Reaction.*
1	May 2, 1906	Ice box	1— 800
2	Oct. 5,	" "	1—1200
3	5,	Room temperature	1—1200
4	18,	" "	1—1200
5	19,	" "	1—1200
6	22,	" "	1—1200
7	Nov. 7,	" "	1—1200
8	10,	" "	1—1200
9	10,	" "	1—1200
10	12,	" "	1—1200

No.	*Date of preparation.*	*Conditions of preservation.*	*Reaction.*
11	Nov. 16, 1906	Room temperature	1—1200
12	23,	" "	1—1200
13	30,	" "	1—1200
14	Jan. 7, 1907	" "	1—1200
15	9,	" "	1—1200
16	14,	" "	1—1200
17	14,	" "	1—1200
18	17,	" "	1—1200
19	17,	" "	1—1200
20	19,	" (new culture 2d gen.)	1—1200
21	21,	" " " 3d "	1—1200
22	30,	" " " " "	1—1200
23	Feb. 3,	" " " " "	1—1200
24	12,	" " " " "	1—1200
25	18,	" " " " "	1—1200
26	Mar. 5,	" " " " "	1—1200
27	6,	" " " 2d "	1—1200
28	16,	" " " " "	1—1200
29	21,	" " " " "	1—1200
30	Apr. 3,	" " " " "	1—1200
31	7,	" " " " "	1—1200
32	12,	" " " " "	1—1200

From the above table it will be seen that all the samples except No. 1 reacted in dilution of 1 to 1,200. No. 1 gave a strong reaction at 1 to 800 after it had been prepared a year and would probably have gone higher, but the limited amount prevented testing it in higher dilutions. We would, therefore, conclude that a good reacting fluid will continue to react for at least a year, when kept under favorable conditions, thus much increasing the practical value of the test, and obviating the necessity of making a new fluid at frequent intervals.

PROCURING THE BLOOD.

In procuring the blood from a small number of horses the task is comparatively easy and simple. However, when samples are to be taken from stables of 50 or 100 horses and the time is limited and it must be done at some time of the day when the horses are not at work, the task assumes quite considerable proportions. A definite method of procedure, therefore, must be followed to be advantageous to all parties concerned.

In drawing the blood from such a stable of horses the most convenient time is at night just as they are coming in from

work or in the evening. About three men are necessary to assist, two to lead out the animals, and one, usually the foreman, to keep the record, give the number or name of the animal and any history of the case worthy of note. As the horses are led out the attendant sponges the neck over the jugular vein with a carbolic solution and leads the animal up to the operator. He is examined for symptoms of glanders; viz., ulcers in the nostrils, swollen submaxillary glands, chorded lymphatics, farcy buds, temperature and any other external appearances worthy of note. The jugular is then compressed and a large hypodermic needle introduced and about an ounce of blood drawn into a clean sterile bottle which is labeled by number or name of the animal. The next horse is then led up and the same procedure followed out. In this manner there is always a horse ready and the operation is very simple and really requires very little time. Blood from 25 or 30 horses can in this way be drawn in an hour. The apparatus necessary is two pails of carbolic solution, about 3%, a vial of pure carbolic acid, bottles (straight wide mouth being preferable) and two large saline or hypodermic needles.

In drawing blood from a stable of horses where there are known to be a number of glandered animals the possible infection of healthy animals by careless and uncleanly methods is believed by the writer to be very great and is an offense which is unnecessary, unpardonable and very unscientific. To avoid this it is necessary to thoroughly wash the animal's neck at the seat of operation with a good disinfectant, have the needles in the bottle of pure carbolic and before using them wash them in the weak solution so as not to cauterize the tissues at the point of puncture or injure the operator's hands. In this way there is a needle in the pure carbolic all the time and by alternating the needles they become thoroughly disinfected and thus obviate the possibility of accidental infection.

The following table will serve to illustrate this point. Samples of blood from a stable of 32 horses were sent to the hospital from another veterinarian to be tested. Within 12 and

19 days three horses, Nos. 11, 18 and 21, which had previously reacted 1 to 200 broke out with symptoms of acute glanders and reacted on a second test 1 to 800. Thirty-two days later four more animals, Nos. 5, 13, 15 and 17, which had previously reacted 1 to 200 reacted 1 to 800. Four of these cases, Nos. 5, 11, 18 and 21, followed animals which had reacted 1 to 800 and the blood was drawn from the healthy animals after samples had been taken from the diseased individuals. To the writer this point seems to be of great importance and should be carefully guarded against lest through such needless infection of apparently healthy animals this method be unjustly criticized and the veterinarian severely reprimanded.

TABLE NO. 2.

No.	*Date and reaction.* Feb. 24, 07.	*Date and reaction.* Mar. 8, 07.	*Date and reaction.* Mar. 28, 07.
1	1—200	.....	1—200
2	1—500	.....	1—800
3	1—500	.....	1—500
4	1—800	.....	1—800
5	1—200	.....	1—800
6	1—200	.....	1—200
7	1—200	.....	1—200
8	1—500	.....	1—200
9	1—800	.....	.....
10	1—200	.....	1—200
11	1—200	1—800 (Mar. 15)	.....
12	1—200	.....	1—200
13	1—200	.....	1—800
14	1—200	.....	1—200
15	1—200	.....	1—800
16	1—200	.....	1—200
17	1—800	.....	1—500
18	1—200	1—800	.....
19	1—200	.....	1—200
20	1—500	.....	1—500
21	1—200	1—800	.....
22	1—500	.....	1—200
23	1—500	.....	1—800
24	1—200	.....	.....
25	1—500	.....	1—500
26	1—200	.....	.....
27	1—200	.....	1—800
28	1—500	.....	1—800
29	1—200	.....	1—200
30	1—200	.....	.....
31	1—200	.....	1—200
32	1—200	.....	1—200

After the blood is drawn if the containers are kept in an upright position and allowed to stand for a few hours the clot forms and the serum is expressed and is an absolutely clear supernatent fluid. In such conditions the centrifuge is not needed and the serum can be decanted and diluted 1 to 40 after which it is ready for the test.

MAKING THE TEST.

The details of the test were followed out as described in Dr. Moore's article previously referred to. Three cubic centimeters of test fluid are placed in each of three tubes and .6 c.c. of diluted serum placed in one, .24 c.c. in a second, and .15 c.c. in a third, making a series of dilutions 1 to 200, 1 to 500 and 1 to 800. These dilutions it is believed are sufficient for practical work and are considered as follows: 1 to 200 normal, 1 to 500 suspicious, and 1 to 800 the animal is considered glandered.

REACTION AND INTERPRETATION OF RESULTS.

The reaction shows a layer of agglutinated bacteria covering the entire convexity of the bottom of the tube. This film-like sediment may become so dense that it rolls in at the periphery. The test fluid becomes clear in the lower dilutions and in cases of a strong reacting serum it may become clear in all the tubes. From twenty-four to thirty-six hours are allowed for a reaction to take place, but if it does not appear in twenty-four hours it is believed that the animal is not very heavily infected. The reaction occurs best in the incubator at about 37 degrees centigrade. However, we have had strong reactions occur in four or five hours at room temperature in dilutions of 1 to 800. In these cases the animals were heavily infected and no test was needed to make a diagnosis of glanders.

A negative result shows a small, round, concentrated spot or "button" of organisms in the center of the convexity of the tube and the test fluid remains apparently unchanged. This occurs usually in dilutions of 1 to 500 and 1 to 800 as there will usually be a reaction in the 1 to 200 tube.

The correct interpretation of results in a test of this kind is a matter which requires considerable experience and practice. The different degrees in the intensity of the reaction is quite important in deciding between the different dilutions to which a serum will react as the gradation between the reaction at one dilution and another is not always clearly defined or definite. We are of the opinion that a horse reacting 1 to 500 is very suspicious and should be retested in a short time and kept under close observation. The reason for this is that in our experience with this test we have had a number of horses which reacted 1 to 500 on the primary test and in a short time either broke out showing unmistakable symptoms of glanders or in a subsequent test reacted 1 to 800. Accordingly we strongly urge that all "500" horses be placed by themselves, put under treatment, worked together and carefully watched.

From these facts we are inclined to conclude that this test will in many cases, to a certain degree at least, give us a cue to the degree of infection. For it is believed that an animal whose system is saturated with *Bact. mallei* and its products will react in higher dilutions than one in which the lesions are more localized.

Accordingly we have come to regard those animals reacting in proportion of 1 to 500 as very suspicious and should be placed under treatment and careful observation.

TREATMENT.

In all cases where glanders was found to exist in a stable the entire stable was tested, the reacting animals separated from the non-reacting and the stable thoroughly cleaned and disinfected. The reacting animals were placed in quarters by themselves, examined very thoroughly for symptoms of glanders, and if none were found they were mated into pairs and put to work. These animals received 2 drachms of potassium iodide in their drinking water in the morning and a half an ounce of Fowler's Solution in their drinking water at night. They were carefully examined physically once a week.

In all cases where the above treatment was carefully carried out the results were very satisfactory. Some animals ceased to react and others reacted higher on subsequent tests and we were in this way able to determine the condition of the animals and thus minimize the possibility of spreading the infection.

REVIEW OF CASES.

It is not possible nor practical at this time to give a review of all the cases examined as the data is not at hand and a more complete report will appear later. However, there are a few cases which seem worthy of note.

One of these was a roan mare about eight years old, weighing about 1,050 lbs. and in fair condition. She was kept in a clean but poorly lighted stable and showed no marked symptoms of glanders. On the first visit she showed increased respirations, loss of strength and condition and a persistent temperature of 102° F. which would not yield to treatment. A sample of blood was taken and it reacted strongly in eight hours 1 to 800. The mare was brought to the hospital, destroyed, and a post-mortem examination made which revealed most typical lesions of pulmonary glanders.

A number of other such cases were observed which at the time of testing reacted 1 to 500 or 1 to 800 and showed no symptoms of glanders, but later presented marked symptoms of this disease and were destroyed. From these cases we have come to the conclusion that this method is of great value in picking out cases of occult glanders.

Another interesting case was that of a large dun-colored gelding weighing about 1,300 lbs. and presenting extensive symptoms of farcy. The blood from this animal reacted in 10 hours in proportion of 1 to 8,000. In another case received this past winter which presented extensive lesions of cutaneous glanders the blood also reacted in proportion of 1 to 8,000. Numerous other cases of farcy have been examined and in every instance the reaction has been prompt and strong and has occurred in high dilutions.

From these cases we are inclined to conclude that the blood from cases of farcy reacts in much higher dilutions than that from cases of more localized infection.

ADVANTAGES OF THE METHOD.

The advantages of this method of diagnosing glanders over some of the others are quite numerous.

To the busy practitioner the fact that this method requires very little time in its operation is a very important factor. When horses are tested with mallein it requires from 36 to 48 hours before a thorough careful test is completed and most all of this time is consumed in taking temperatures and injecting the mallein, etc. By this method when everything is in readiness it requires only a few minutes to make a test and oftentimes results can be obtained in six or eight hours. It is, therefore, rapid and time saving. A stable of fifty horses can be tested in four or five hours of actual work.

A rise of temperature seems to have no effect on the efficiency of the test, whereas under such conditions it is not advisable to resort to malleinization.

The animals are not prevented from working and thus no time is lost from their general service as in the application of the mallein test. The horse need not be taken out of his harness to draw an ounce of blood.

Many times in the application of the mallein test owners will accuse a veterinarian, as in the tuberculin test, of injecting something into the animal's system detrimental to its general health, thus injuring the horse in some way. In this method of diagnosis there are no accusations of this kind, there are no local swellings and no systemic disturbances.

In cases of occult glanders this method serves admirably in detecting them. These may be the cases which are dangerous to the health of the other animals in the stable and may be the spreaders of the disease. Thus by a very easy and practical means we are able to isolate the reacters and in so doing protect the uninfected from this possible source of infection. Further-

more in a large city where a considerable percentage of the horses are infected with glanders and where outside infection from public drinking troughs, hitching-posts and the like is common, this method is exceptionally valuable in keeping a check on the general health of a stable in much the same manner as tuberculin serves as a check in the control of tuberculosis in a herd.

The results we have obtained have been fully as satisfactory as any obtained with mallein and we believe the efficiency to be equally as good, if not greater in many cases, as in the application of that diagnostic agent.

The writer would lay special stress on the strict observance of cleanliness and thorough disinfection in drawing the blood. It is imperative that a careful and intelligent interpretation of results be made, especially in those cases reacting 1 to 500, as these are the most important of all and unless symptoms of glanders are present these should be held for a subsequent test. Finally it is necessary that the operator of this method have at least a general training in laboratory work and technique.

It is believed that in this method of diagnosing glanders we have one which is more rapid, practical and oftentimes more efficient than any other yet devised.

The writer desires at this time to acknowledge his indebtedness and express his thanks to Dr. V. A. Moore and Dr. Geo. H. Berns, through whose valuable suggestions and assistance this work was made possible.

THREE NEW STATE VETERINARY COLLEGES will soon be opened for students, viz.: Illinois, as a department of the University of Illinois, at Chicago; Colorado, as a department of the Colorado Agricultural College, at Fort Collins; Michigan, as a department of the Michigan Agricultural College, at Lansing. Besides, the Ontario Veterinary College, in 1908, will become a Government school, and will be entirely reorganized upon a university basis. Surely the tendency in veterinary educational matters is upward. It behooves the profession to so harmonize existing conditions that the benefits may be reaped from these exceptional opportunities.

CONCREMENTS.

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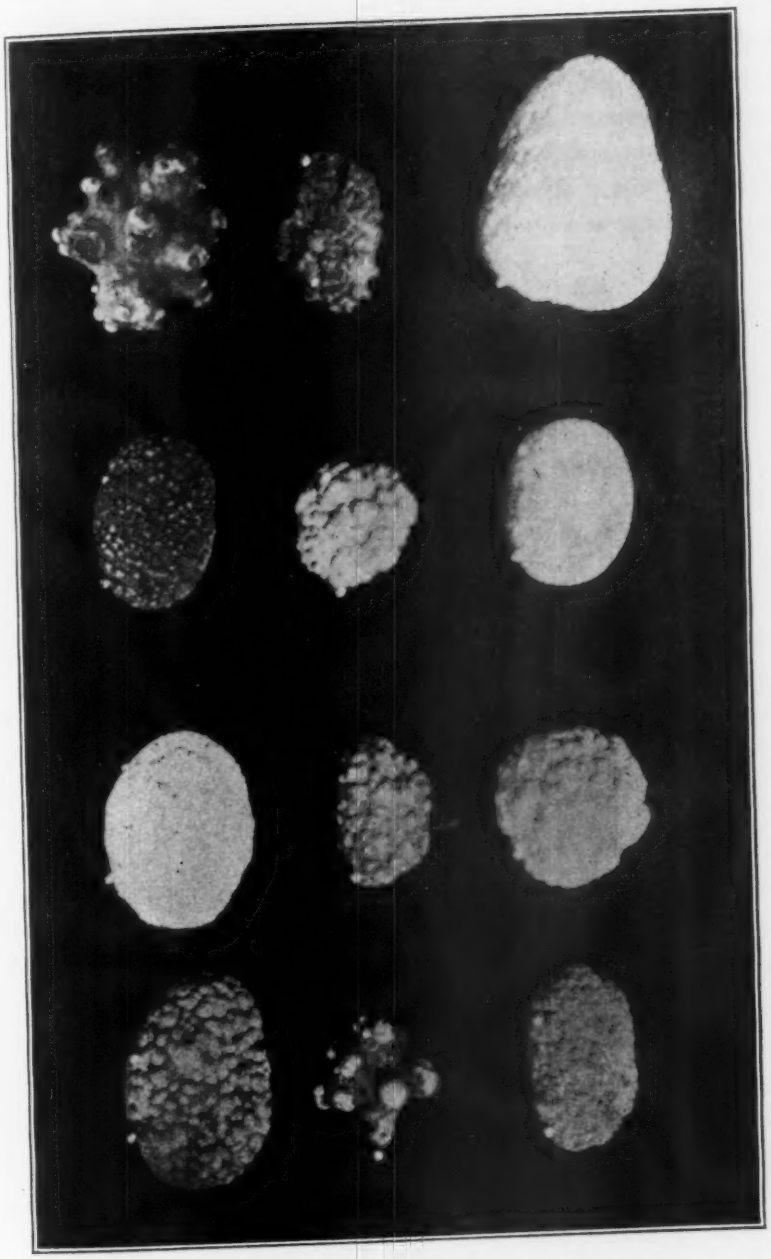
Concrements are abnormal accumulations of organic or inorganic substance derived from the tissues and deposited in the cavities of hollow organs of the animal body. They may be conveniently classified as inorganic concrements or calculi, and organic concrements.

1. Calculi are mineral concrements, a result of accumulation in the body cavities of precipitates from the body fluids or they may be incrustations upon foreign substances in the body cavities. The mineral deposits formed within the tissues of the animal body, as calcified tubercules, etc., are calcareous infiltrations, calcification or tissue petrification. However, calculi may, and frequently do, become attached to the tissue surrounding them (phleboliths), and a calcified tissue may become separated from the surrounding structures (calcified necrotic tissue in fistula), so the two conditions, calculi formation and calcification, approximate each other closely and at times are not separable.

The cause of calculi formation is not thoroughly understood. The most probable cause is the supersaturation of the body fluids with salines. The fluids may become supersaturated either by an excessive production of the salines or diminished excretion of them. The lack of oxygen or an excess of carbon dioxide may cause the precipitation in body fluids, especially of calcium and magnesium carbonates. Fermentation of the various juices may result in precipitation of a variety of compounds. But why the precipitate should accumulate as a calculus is unexplained, it is a phenomenon not understood. There are many predisposing causes that aid in the formation of calculi.



CUT I.—Cystic Calculi, Showing Variable Shapes.

The retention or delay in the excretion of fluids, especially if they undergo any chemical change, are principal factors in their formation. Intoxication from mercury predisposes to the formation of urinary calculi. The presence of any foreign body, as particles of sand, desquamated cells, coagulated albumen, parasites, etc., upon which a precipitate is accrued is a predisposing cause. "All calculi have an organic nucleus upon which is

CUT II.—Cystic Calculus from Jack.

deposited the precipitate" (Zeigler). But it seems possible and quite probable that particles of inorganic matter are deposited upon it in the formation of calculi as well as organic.

The structure of calculi varies. Homogeneous calculi are composed of layer upon layer of the same material and have

the same appearance throughout. Heterologous calculi are laminated, *i.e.*, they are composed of layers of different material and appear different in the succeeding layers. (Figure 3, Cut IV.)* They vary from finely granular masses, appearing as though many grains of sand had been fused into a mass (Cut 1); to lobulated masses (mulberry calculi) (Cut 1); or are smooth masses appearing as though they were molten mineral run into forms (Cut 1).

CUT III.—Salivary Calculus, Showing Organic Nucleus.

Calculi assume all conceivable shapes. Cystic calculi vary in form from spheres to jack straws (Cut 1), and even coral-like bodies or stalactite calculi have been observed. Their form may be determined by the location of formation; thus renal calculi may assume the shape of the renal tubules, renal pelvic calculi the shape of the renal pelvis. Intestinal calculi are usually more or less spherical in shape. Salivary calculi are ovoid.

* Photographs by Dr. A. L. Hunt.

Calculi may be faceted when occurring in large numbers (Figure 1 and 2, Cut VI.).

The size of calculi varies from the finest sand-like grains (Figure 2, Cut V.) to enormous accumulations. Cut 2 represents a 228-gram cystic calculus removed from a Jack, by Dr. McCasey, Concordia, Kansas. A 260-gram cystic calculus was removed from a five-year-old Jack at the Missouri Valley Veterinary Association clinic in February, 1907. A salivary calculus in Stenos duct weighing 125 grams was removed in 1906 by Dr. Z. C. Boyd.

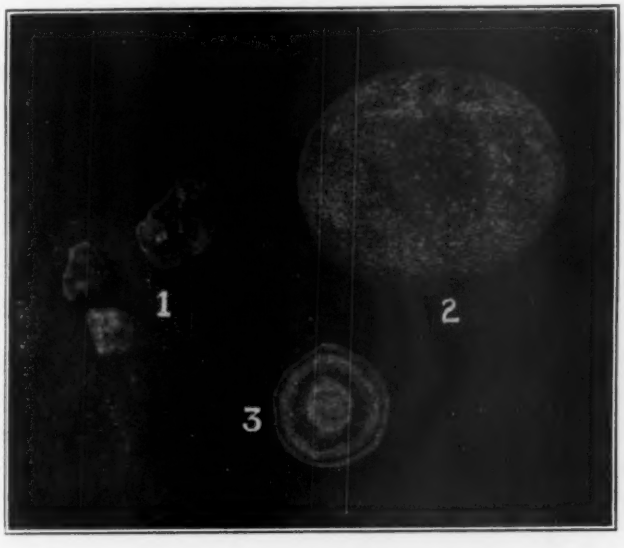
The number of calculi occurring in one animal is quite variable. There has been a case reported in which there was over 300 cystic calculi in one dog, although that is an unusual number.

The color of calculi is determined by their composition. Thus biliary calculi are highly colored because of the bile pigment, bilirubin and biliverdin, that they contain. Enteroliths are usually colored from the intestinal contents. Arterioliths and phleboliths are colored with haemaglobin or some of its derivatives. Urinary calculi may be gray, brown, yellow, or even red, depending upon their composition. Salivary calculi may be chalk white or tinted with various colors.

A variety of chemical compounds are found in the various calculi. Urinary calculi may contain cystin, xanthin, urates, oxalates, carbonates, phosphates, calcium, magnesium, etc. Cystin and xanthin urinary calculi are quite rare. Urates are common in renal tubular calculi, also cystic calculi of dogs and cats. Carbonates predominate in cystic calculi of the horse and ox. Ammonium magnesium phosphate is the principal compound in cystic calculi of the sheep and hog. Urethral calculi are of the same composition as cystic calculi of the same animal. Preputial calculi are usually composed of carbonates in the horse and of phosphates in the ox and sheep. Biliary calculi may be composed of carbonates or phosphates, but are more frequently composed of calcium biliverdin. Enteroliths may con-

tain a large nucleus of fecal matter or hair which becomes permeated and incrusted with calcium or magnesium carbonates, phosphates, sulphates or oxalates. Salivary calculi, arterioliths, and phleboliths are usually composed of the carbonates and phosphates of calcium and magnesium. Lacteal calculi are composed chiefly of phosphates.

Urinary Calculi are of frequent occurrence and may be conveniently classified according to the location in which they



CUT IV.—Fig. 1. Renal Calculi from Steer.
Fig. 2. Preputial Calculus, Hog.
Fig. 3. Preputial Calculus Showing Lamination.

occur, 1. Renal tubular calculi are most common in dogs and cats, but may occur in horses, cattle and hogs. (Figure 1, Cut IV.) After formation they frequently pass into the pelvis of the kidney and the urine may wash them down through the ureter into the bladder and sometimes on out of the animal body. They may obstruct the tubule causing retention of urine with distention of the tubule and frequently cyst formation. 2. Renal

pelvic calculi are not rae, the pelvis of the kidney sometimes being completely filled with a calculus. This variety has been observed in the hog, dog, cat, horse, and sheep, the frequency in the different animals being in the order named. Figure 1, Cut V. represents a 7-gram renal pelvic calculus that was obtained in 1906 from a horse used for dissection purposes at the Kansas City Veterinary College. G. H. Woolridge, of Dublin, describes a case of renal pelvic calculi in a horse (*Veterinary Journal* for June, 1907). The entire kidney was practically replaced by calculi. The results of calculi in the renal pelvis depends upon their extent, complete obstruction necessarily results in the retention of urine followed either by its resorption or accumulation forming a cystic kidney. The former condition is common in dogs, the latter in hogs. 3. Ureter calculi have been observed, but are rare. 4. Cystic or vesical calculi are the most common of all urinary concretions. Dogs and cats are quite subject to them, occurring more frequently in the older animals, but the puppy and kitten are not exempt. Bitches and castrated male cats are especially subject to cystic calculi. Jacks are frequently affected with cystic calculi, horses, goats, sheep and cattle are less frequently affected with them. Cystic calculi may cause no inconvenience, or they may produce sufficient irritation to establish a severe cystitis. They may obstruct the urethral opening resulting in retention of urine and rupture of the bladder. Frequently they become embedded in the walls of the bladder and may cause dilatation or pouching of its walls. Sometimes the calculi pass out of the bladder and become lodged in the urethra, resulting in retention of urine, difficult micturition, and usually in urethritis. 5. Urethral calculi are common in old dogs, also in the bull and ram, and have been observed in the horse. They occur in the urethra, in the beginning of the gutter of the os penis in the dog, usually in the first curve of the penis in the bull, just posterior to the meatus urinaris in the ram and in the ischial arch in the horse. They usually cause difficulty in micturating and may completely obstruct the urethra with the same results that is

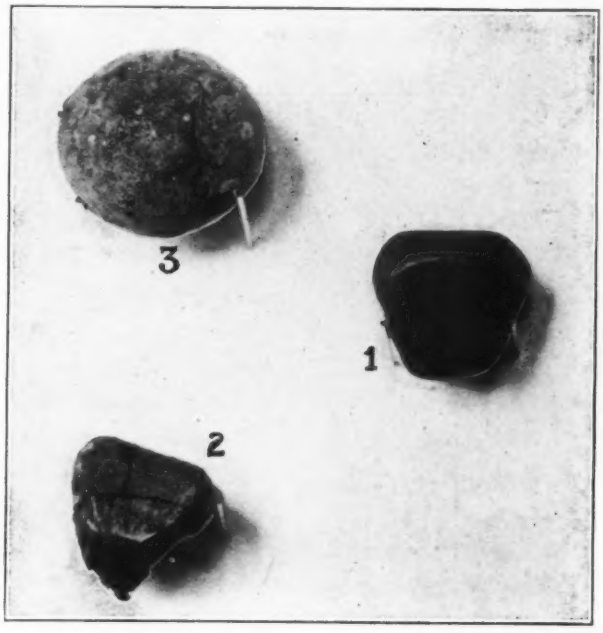
produced by occluding the urethral opening of the bladder. About 200 urethral calculi were observed in the urethra of one steer by Dr. B. F. Kaupp. Figure 2, Cut V., represents three urethral calculi from a steer. 6. Preputial calculi sometimes occur in geldings, although these concrements are more frequently an accumulation of the secretion from the adjacent sebaceous glands. W. Williams reported cases in which there was formation of stalactite bodies in the prepuce of oxen and

CUT V.—Fig. 1. Renal Pelvic Calculus, Horse.
Fig. 2. Urethral Calculi.

sheep that had been fed food material containing a large percent. of phosphates. A preputial calculus weighing 11 grams and another weighing 10 grams were obtained from a hog by a veterinary inspector. (See Cut IV., Figures 2 and 3.)

Salivary Calculi occur most frequently in the horse, although they do occur in the ass, ox and sheep. Their formation depends upon the ingested water containing a large quantity of carbonates of potassium, sodium and magnesium and the presence of

calcium salts in the saliva. Dr. J. M. Lawrence, Veterinarian U. S. Army, Fort Wingate, N. M., operated upon two horses April 6, 1907, removing from Steno's duct in each a salivary calculus. Cut 3 represents one of these calculi, in the center of which is located an oat grain (nucleus) upon which the deposit took place. This calculus weighs 19 grams. The result of



CUT VI.—Biliary Calculi, Ox.
Fig. 1. Showing Facets.
Fig. 2. Showing Facets and Lamination.
Fig. 3. Showing Crevice.

these calculi is to obstruct the outflow of saliva, the retention of which in the smaller ducts may cause inflammatory, degenerative, or atrophic changes in the gland, and if the calculi are not removed the destruction of the gland or the rupture of the duct and a salivary fistula. Tartar on dogs' teeth has a similar origin to salivary calculi.

Gastric Calculi are rather rare, occurring sometimes in the paunches or reticuli of cattle, sheep or goats. They are excep-

tionally rare in the horse and hog and probably never occur in dogs and cats.

Intestinal Calculi or enteroliths are found in the large intestine of the horse, especially those fed upon bran. These calculi are composed primarily of ammonio-magnesium phosphate, the magnesium phosphate being dissolved out of the bran by the acid of the gastric juice and unites with nascent ammonium forming an almost insoluble phosphate. Enteroliths may be of enormous size in some cases weighing as much as ten kilograms. These calculi are likely to cause erosions of the m.m. as well as obstructing the lumen of the intestine. Linch, of Albany, N.Y., reported a case in the *Review*, 1906, in which a calculus weighing 3.4 kilograms was found. Gage reported a case in which a calculus weighing .9 kilogram produced fatal results. Hodgkins and Son, of Hanley, England, recently obtained three enteroliths weighing 1.6 kilograms from the intestine of a horse.

Biliary Calculi (Cholelithiasis) are not rare in the domestic animals. They vary from the size of a pea to a baseball, are tinted yellow, brown, red, green, or may be chalk white in color. Frequently they occur in large numbers, are variable in shape, and structure. They are usually composed of biliary pigments in combination with calcium, although carbonate and phosphates are common ingredients. Biliary calculi may form in the biliary collecting tubules in the gall bladder or in the bile duct. The results of their presence depends upon the location and size of them. If they are small and cause no obstruction there will be no inconvenience from them. If they are of a size that they can be forced through the bile ducts they will produce severe colicky pains at the time of passage. They may be sufficiently large to obstruct the bile duct or some principal collecting tubule and produce a stagnation and resorption of bile, and digestive disturbance may also be present because of the diminished quantity of bile in the intestinal canal. Cut VI. shows a group of three biliary calculi from an ox. They show lamination, also contact with other calculi by the presence of facets. Figure 2, Cut VI.)

CUT VII.—Hair Balls, Ox; Natural Size.

Lacteal Calculi may be formed in the galactophorous sinuses, especially of the ox. They are usually composed of calcium phosphate.

Phleboliths or calculi in veins have been observed by Spooner in abdominal veins and by Simmonds in the jugular vein. They are probably the result of calcification of thrombi which later become detached from the vessel walls and are true calculi. They produce an obstruction in the vessels in which they occur. They may be of slight significance or may terminate fatally, depending upon the importance of the vessel and the extent of the collateral circulation or anastomosis. These calculi are usually composed of calcium compounds.

Arterioliths are calculi formed in arteries. Their cause, formation, composition, and termination being practically the same as phleboliths.

2. *Organic Concrements* are accumulations of organic material in the cavities of the hollow organs, their effects being practically the same as the effects of calculi is the reason for their description here. The cause of their formation depends upon the collection and massing together of organic substances derived either from the body in which the concrements occur or from some extraneous source. They may be homogeneous or hetergeneous in structure; oval, spherical, or angular and faceted in shape; variable in size, number and color. They may be composed of hair, mucous, fecal matter, casein, inspissiated pus or bile, ingesta of various kinds, etc.

Hair Balls are accumulations of hair into masses. They occur most frequently in animals that lick themselves as the ox and deer. Other animals are affected as the hog, dog and cat, also man, especially barbers, hair-sorters, hair-dressers, etc. Cut VII. represents two hair balls from an ox. They vary in size from a pigeon's egg to a basket ball. They are in some cases simply masses of hair, in others they are impregnated and incrusted with mineral substances giving them the appearance of calculi. Hair balls incrusted with mineral salts taken from the

deer by someone's grandfather or great-grandfather is the ordinary "mad-stone" in use at the present time. Recently a hair ball (bristles) completely filling the stomach of a hog was obtained from a hog slaughtered in a Kansas City packing-house. Hair balls are usually found in the abomasum or large intestine of the ox and in the stomach or large intestine of the hog. The presence of a hair ball produces the same effects that would be produced by any other indigestible body of the same size in the same location.

Fecal Concrements.—The intestinal contents may accumulate into compact masses. These concrements interfere with the movement of foodstuff through the canal and may completely obstruct it. Appendicitis in the human is frequently a result of a fecal concrement. These concrements occur most frequently in the horse, dog and cat. They are usually composed of cellulose in the horse, of bones and bone fragments in the dog and cat. The large intestine is the usual location of them in the horse and the small intestine in the dog or cat. Maxwell reported a case in which alfalfa accumulated in the large intestine of a horse—the concrements being from 7 to 9 inches in diameter. The results of fecal concrements depend upon either mechanical interference in the passage of intestinal contents, erosion of the intestinal mucous membrane or perforation of the intestinal wall, or a combination of two or more of the above.

Inspissated Bile.—If the outflow of bile is obstructed it will become condensed or inspissated depending upon the length of time of obstruction. Inspissation of bile frequently occurs. The animals most frequently affected are the ox and hog. An ox liver, containing several concrements composed of inspissated bile in the interlobular ducts, was presented to the Kansas City Veterinary College by Dr. Bugbee. The inspissated bile may form masses which in general appearance resemble biliary calculi. It is sometimes impossible to differentiate biliary calculi from inspissated bile and in fact the calculi are frequently of secondary formation, the inspissated bile forming the nucleus. The

results of inspissated bile depend first upon the resorption of bile into the system and second upon the absence of bile in the intestine.

Inspissated Pus.—Empyema sometimes terminates, when there is no surgical interference, in resorption of the liquor puris after which the solid constituents frequently mass together, forming concrements. Cut VIII. shows two inspissated pus concrements removed from the guttural pouch of a horse. These concrements may form in any cavity in which the sup-

CUT VIII.—Fig. 1. Inspissated Pus.
Fig. 2. Guttural Pouch, Horse.

puration is slow going or chronic provided the movement of the part is limited. After formation they may become calcified. They are of little importance except as a pathologic phenomenon.

Lacteal Concrements result from the coagulation of the casein of the milk and its accumulation in the galactophorous sinuses. These concrements occur in the cow and can usually be expelled through the lacteal duct by manipulations.

Ceruminous concrements occur in animals in which the hair or wool extends far into the external auditory meatus. They are composed of cerumen and are the result of an excessive production or limited excretion of it. This may form into sufficient masses to completely occlude the external auditory meatus and thus interfere with hearing. Concrements have been found in the bronchial tubes. Their formation depends upon the condensation and accumulation of mucous or purulent fluid. They may obstruct bronchioles and produce atalectasis.

Prostatic concrements frequently occur in old dogs. They are present in many of the enlarged prostate glands. They consist of masses of accumulated colloid-like material. The results depend upon the pressure upon the urethra causing an obstruction to the outflow of urine.

The description of the surgical relief of calculi has been purposely omitted hoping it will be supplied by some of our able surgeons.

PARIS AUTOMOBILE DEALERS, according to the New York *Herald,* are loudly complaining that the season of 1907 has been the worst yet known for the sale of machines. Several things are blamed for the present situation—the stock market, the late season, and obvious overproduction.

NINETY SIX JERSEYS BRING $91,000—WORLD'S PRICE RECORD.—*Coopersburg, Penn., July* 18.—T. S. Cooper, importer and breeder of Jersey cattle, sold a herd of ninety-six cows to Col. A. B. Lewis, of New York and Fredericksburg, Va., to-day, for $91,000 spot cash. It is said that this is the world's record private sale of Jerseys. This sale surpasses the average realized at Cooper's Memorial Day sale, when 114 head netted $93,950. At that sale Col. Lewis bought imported Stockwell, the king of the herd, for $11,500. While negotiating to-day's sale Col. Lewis offered $59,000 for ten additional animals, but Mr. Cooper refused to part with them. He also declined $20,000 and $15,000 respectively for two bulls, $15,000 for a star cow, and refused to take $27,000 for nine cows that had been picked out. It is said that the herd purchased was bought by a syndicate and there is a rumor that the ninety-six head will go on Thomas F. Ryan's estate in Virginia.

TUBERCULOSIS—BACILLUS NECROPHORUS—ANO-VULVITIS.

REPORT OF THE COMMITTEE ON DISEASES OF THE IOWA VETERINARY ASSOCIATION.

By Members of Committee: R. R. Dykstra, Chairman; J. W. Griffith and J. D. Stillwell.

Your Committee on Diseases begs leave to submit the following report, which you will find is in the nature of a review of the work being accomplished by scientists in the laboratory and in actual practice, and is not the result of original research work by members of the committee.

We were as usual handicapped to a large extent by lack of time, which is required to get up a report of this character creditably, but trust that the members of the Association will be as indulgent with us as it has been with former committees.

The first subject taken up by the Committee, and the one which we consider of the utmost importance is tuberculosis.

This is one of the most ancient diseases affecting animals. It was referred to by people of earlier times as the "great white plague" on account of the emaciated and anæmic condition of the patients. It was up to 1882, in which year Dr. Robert Koch discovered the specific organism causing the disease, supposed to be directly transmitted from parent to offspring. Since that time it has, however, been amply demonstrated that this is not the case, but that young of consumptive parents are peculiarly predisposed to the disease and on account of the intimacy or closeness of contact existing between them they are more liable to contract it.

We find that there are certain localities which are entirely free from the disease, as, for instance, in the island of Jersey. This freedom is said to be due to the fact that there have been no importations of cattle or other animals from countries where tuberculosis exists.

In the United States, however, the disease is quite prevalent, though not nearly as large a percentage of our domestic animals are affected as in Europe. In fact, authorities claim that in some of our Western States it is practically unknown. Nevertheless, it cannot be denied that tuberculosis is gradually spreading, as is evidenced by reports from the various abattoirs.

The organism causing tuberculosis is known as the *Bacterium tuberculosis,* and not as the *Bacillus tuberculosis,* because all rod-shaped, non-motile bacteria are now placed in the former classification.

There is a question in the minds of a good many investigators whether the organism causing human and bovine tuberculosis are identical and whether the disease can be transmitted from cattle to man. This doubt originated largely from the fact that Koch in 1901 expressed it as his belief that the disease was not the same, because he had been unable to cause tuberculosis in cattle by injecting them with the human *Bacterium tuberculosis.* This was probably an error, because it is to be supposed that tubercle bacteria taken from man will increase in virulence when passed through a large number of cattle. In fact, in an experiment conducted by the Bureau of Animal Industry, it was demonstrated in the first place that the tubercle bacteria of children is more virulent than that of adults, and, second, that the organism taken from four children affected with generalized tuberculosis and injected subcutaneously into calves produced in two of them generalized tuberculosis, in which the lesions were quite as severe as those produced by a fresh culture of the bovine tubercle bacterium which was isolated from a case of natural tuberculosis in a cow.

The symptoms are too well known to merit any particular mention in this report, but the phase of the question which interests us particularly, and one which should be given the most careful and thoughtful consideration, is the methods which may be adopted for the prevention of its further spread and propagation, both from animal to man and from animal to animal.

Let us take up first the method of transmission from animal to man. It is a well-known fact that animals suffering from tuberculosis of the mammary gland will give off *Bacterium tuberculosis,* but this organism is also frequently found in milk cows which do not have the udder affected but are suffering from some other form of the disease, either localized or generalized, so that an absence of tubercular mastitis is not evidence that the *Bacterium tuberculosis* is absent in the milk. Knowing this to be the case and also that bovine tuberculosis can be transmitted to humans by the ingestion of such milk, its use should be prohibited. It has been advocated to pasteurize the milk of all animals used for human consumption by subjecting it to high temperature, but the use of such milk produces in children and calves a form of diarrhœa which cannot be controlled during the use of pasteurized product.

The use of formaldehyde in milk in the proportion of one to ten thousand or one to forty thousand has also been experimented with, and while this was found to be an excellent remedy to control dysentery in calves, it does not make the milk from tuberculous cattle absolutely safe. In fact, a mixture of the above strength does not destroy the *Bacterium tuberculosis,* but merely inhibits the decomposition of the milk with the subsequent destruction of the antibodies.

The second phase of the question we are considering is the prevention of the spread of tuberculosis from one animal to another. The accomplishment of the preceding has been attempted in two ways:

1. By isolation or destruction of diseased animals.
2. By immunization of healthy animals.

Since the discovery of tuberculin by Koch, which is a glycerine extract of the germ of tuberculosis, we have been able to positively discover tuberculosis in animals before they manifest any of the physical symptoms of the disease. This discovery in itself is very important, and, while it does not come up to Koch's expectations, because it was his belief that he had

found a cure for tuberculosis, still it is of inestimable value, because by its use we can put into practice the various methods of isolation. The principal one of these, and the one which has been followed with the most notable results, is the one advocated by Prof. Bang. Briefly, it consists of the following: Upon application by the stock-owners, the state will test all animals free of charge and even pay a small indemnity for animals killed on account of advanced tuberculosis. In return the owner agrees to keep the reacting and non-reacting animals in separate enclosures with separate attendants and utensils for each herd.

The milk of the reacting herd is sterilized before being consumed either by man, calves, pigs or any other animals, or in the manufacture of butter or cheese.

The quarantined herd is kept under Government supervision and cannot be disposed of without authority from the Government. When they are to be slaughtered this is done under the supervision of the Government and the beef disposed of according to the conditions found.

In Pennsylvania practically the same method has been adopted except that the milk of reacting cattle is sterilized before being sold or the reacting animals are destroyed, at the option of the owner, who is indemnified by the State.

Both these methods have greatly reduced the number of tuberculosis animals in the States where the method was tried and are worthy of commendation.

The other method consists in the immunization of animals before they become tubercular. The most that can be said for them is that they are still in the experimental stage, notwithstanding the claims made for them by their discoverers.

Tuberculin has been experimented with by various authorities. Its value as an immunizing agent is practically nil, because not in any case in which it has been used with this object in view has it conferred any degree of immunity. One of the most noted of these experimenters, Prof. McFadyean, proceed-

ed as follows: Three heifers were used. One of these received 18 injections of tuberculin, the doses varying from 1 c.c. to 20 c.c. Thirteen days after the last injection the animal was given an intravenous injection of 2 c.c. of a liquid rich in the *Bacterium tuberculosis,* "prepared by rubbing up some caseopurulent matter from the mesenteric gland of a horse with sterile water." The remaining two animals did not receive any tuberculin, but received in a similar manner a like quantity of the same liquid charged with the live organisms as No. 1. Cases No. 2 and 3 later became ill and were killed. On post-mortem their lungs were found to contain many tubercles, and the mediastinal and bronchial lymph glands were enlarged and caseating. Animal No. 1 after receiving the intravenous injection of the *Bacterium tuberculosis* received several injections of tuberculin. It responded to the first of these doses, but subsequently failed to respond to larger doses. A few months later she was killed and a very minute post-mortem examination was made, with the result that the only lesion found was a completely calcified tubercle about the size of a pea in one of the mesenteric glands. The experimenter assumed that this animal had acquired quite a high degree of immunity.

Another experiment conducted along practically the same lines by McFadyean led him to suppose that the animals experimented upon had been rendered immune as no physical signs of tuberculosis were noticeable, and at the time of reporting the animals were fat and did not react to tuberculin.

"The danger of reaching any conclusion in such cases in the absence of a post-mortem examination is strikingly illustrated by the subsequent history of these animals, for, although two of them appeared in perfect health, and the third in good health, all of them died of tuberculosis within eight months from the time the report was made." In this country Pearson and Gilliland have been experimenting along the same lines, in addition to which they have attempted to immunize cattle by giving them intravenous injections of sputum cultures of tu-

berculosis bacteria not virulent for cattle. After receiving several of these injections they, in common with control animals, were inoculated with virulent bovine tubercle bacteria. Upon post-mortem examination the vaccinated animals were practically free from any lesions, while both controls gave evidence of a general infection.

The latest method of immunization is that advocated and discovered by Prof. von Behring. It is termed bovovaccination, and the preparation used is known as Bovovaccine. This consists of the dried human *Tubercle bacterium,* derived from a culture tested very carefully as to its effects upon cattle. This is injected intravenously. Cattle free from any epizootical disease and preferably not older than two weeks to three months are chosen. Animals of this age do not have to be previously tested with tuberculin, even if they are derived from a notoriously tuberculous herd. Two injections are made at an interval of at least twelve weeks. It is claimed that these injections are absolutely harmless if the technique of the operation is carefully carried out, and that "animals immunized by this method will probably remain so for all their life-time." But with experiences dating back only three to four years, nothing definite can of course be said as to whether this holds good, also to extraordinary conditions, for instance, in great danger of infection. But under general conditions immunized calves will remain immune all their lifetime.

It is readily understood from the foregoing that prevention of tuberculosis by immunization is still in the experimental stage, and that it is yet too early to arrive at any definite conclusions. And as long as this state of uncertainty exists and we have at hand an agent by means of which tuberculosis can be positively identified, it is no more than reasonable that the milk sold for consumption or used in the manufacture of butter or cheese (for the *Tubercle bacterium* is also found in these products) should be derived only from cattle which have been tested and failed to react and do not show any physical signs of tuberculosis.

In regard to the suppression of tuberculosis in our domestic animals, the system adopted in Pennsylvania seems to offer the best method for its successful eradication, while it at the same time does not cause hardship in any quarter.

BACILLUS NECROPHORUS.

The second section of our report consists of a discussion of the *Bacillus necrophorus* and its importance from an economical standpoint.

The most general and able discussion of this subject is that submitted by Dr. John R. Mohler and Geo. Byron Morse, and from their report we have copied extensively, including, however, reports of some cases noticed in Iowa.

The organism was first described by Loffler, and its relation to the various necrotic diseases of animals demonstrated by him. In 1884 he investigated an outbreak of calf-diphtheria and proved that the *Bacillus necrophorus* is the causative agent.

To Bang belongs the honor of having demonstrated that the *Bacillus necrophorus* is a normal inhabitant of the healthy intestine of the hog. He was not so successful in attempting to discover it in the digestive tract of cattle. It is also found in manure and consequently in soil which comes in contact with it.

This organism is described as being a pleomorphic one, varying in shape according to the character of the media, and also its age having considerable influence on the shape. It has been described as varying from a coccoid form to that of filament over 100 M. in length and from 0.75 M. to 1.5 M. in width. The filamentous forms are generally beaded and matted together. Motility has been advanced as a characteristic by one investigator, but the majority of authorities have failed to find this. It can be stained in the ordinary method, very brilliant effects being obtained with fuchsin. It does not take Gram's stain. The cultivation of the organism is not easy. It is an absolute anærobe.

The influence of several germicidal agents was demonstrated experimentally by exposing the *Bacillus necrophorus* to their

action in varying strengths, and it was found that after a two-minute exposure to a 2% phenol solution no growth occurred. An exposure of 9 minutes was necessary in the case of a 1-2000 bichloride solution, and 13 minutes for a 2½% solution to destroy the organism. The odor emitted by the organism is very pungent and described as resembling that given off by old cheese and glue. The fact that it gives off a toxin is evidenced (1) by the sudden death without premonitory symptoms, (2) by the cadaveric rigidity, which is promoted by the presence of toxins in the blood, and (3) by the study of the pathologic histology.

In regard to the establishment of an acquired immunity we may state that the experiments carried out are not extensive enough to be able to determine positively whether any kind of an immunity can be conferred.

The organism causes a coagulation necrosis with subsequent caseation and characterized by a malignant tendency to invade the whole body. It spreads in three ways: (1) by a progressive advance into the surrounding tissue, (2) invasion by metastasis, and (3) by general intoxication.

The local lesion is described as a sharply circumscribed patch of yellowish or dull brown, sometimes greenish, white homogeneous, structureless, dry, crumbly tissue, debris of soft cheesy consistency, resembling compressed yeast, and manifesting a characteristic stench that might be described as a compound of the odors of old cheese and glue.

Necrobacillosis occurs only as a result of inoculation, that is the specific cause enters the animal's body through some abraised surface or impaired tissue.

Various diseases starting as simple inflammatory processes caused by the action of irritants, as for instance, thermal or chemical are increased in severity by the entrance of the *Bacillus necrophorus*. Pressure from harness or any other contusion, bruise or wound frequently becomes almost malignant in nature due to the entrance of the necrosis bacillus. It has been found in some of the more severe forms of scratches and several inves-

tigators have demonstrated its presence in cartilaginous quittor. In the digestive tract it causes necrobacillosis which by extension involves the peritoneum causing peritonitis.

Believing that the organism is a normal inhabitant of the intestines of calves and that they only await the action of some irritant in order to set up their baneful influence, Jensen fed healthy calves with irritant drugs and had the satisfaction of seeing them sicken and die with white scour. The organism being afterwards recovered from the blood. One observer even claims that it is common with *Bacillus typhosus,* the cause of typhoid fever, and that some helminth produces the abrasion in the intestinal mucosa.

Necrotic stomatitis, necrotic ano-vulvitis, necrotic vaginitis, necrotic metritis and foot-rot of cattle are all induced by the *Bacillus necrophorus.* In some instances the infection being so intense as to involve neighboring structures, setting up a general infection or septicæmia, which terminates fatally. In the purulent material obtained from the joints of calves and foals suffering from joint-ill, Mettam isolated the *Bacillus necrophorus.*

Examinations conducted by the Veterinary Division at Ames have demonstrated the presence of the organism in various forms of dermatitis of hogs. In one outbreak occurring on a farm near Red Oak, several hogs were affected, the necrotic process being confined to the frontal region.

A few days ago a sample of pork taken from a hog near Webster City was sent in by a veterinarian. These specimens showed numerous small pus pockets, which were at first supposed to be tubercular, but a microscopic examination revealed the presence of the *Bacillus necrophorus.*

A cow belonging to the College herd became sickly soon after an easy delivery. The cachexia became more profound, the animal strained almost continuously, and finally became so weak that she died.

The symptoms indicated a disturbed condition of the genitals, and a post-mortem examination confirmed the diagnosis of

metritis previously made, the uterus being highly inflamed and showing numerous necrotic areas. These later when subjected to a microscopic examination revealed the *Bacillus necrophorus* in large numbers.

Numerous other cases could be cited, but lack of time and space forbid. Enough has, however, been given to indicate the widespread and destructive influence of the *Bacillus necrophorus.*

The prophylaxis depends of course upon particular form of necrobacillosis to be prevented. Absolute cleanliness and thorough disinfection of all parts which may afford a point of entrance for the organism should at all times be enforced.

Joint-ill can be prevented by disinfecting the umbillicus. Necrotic stomatitis by a thorough disinfection of the mouth at the time of eruption of the first teeth. Since most domesticated animals are liable to infection they should be kept away from the diseased ones or from any place where these latter have been kept, without first thoroughly disinfecting the place.

Therapeutics consist in the use of any of the various antiseptics, in strength used in the treatment of ordinary wounds. Even simple exposure to the influence of the air by the removal of the necrotic masses, should have a beneficial effect, since the organism is an absolute anærobe; however, this latter should not be depended upon alone.

The fact that the various forms of disease caused by the *Bacillus necrophorus* are of an enzoötic character instead of epizoötic leads us to conclude that its control lies largely in the effort exerted by the individual members of the veterinary profession.

AN OUTBREAK OF ANO-VULVITIS.

Report by Dr. John D. Stillwell.

During the month of January, 1906, I was summoned to the farm of Wm. Ginger, a prosperous farmer residing three miles east of Paullina, O'Brien County, Iowa, to investigate a disease which had appeared among his cattle a short time previous. On my arrival I found a herd of about seventy-five cattle

including heifers, steers and milch cows, mostly grades, and ranging in age from yearlings to six or seven-year-old cows. The steers number about twenty-five.

History—Owner stated that about one week previous he had noticed a yearling heifer whose external genital organs were raw and bleeding, but as he expressed it, he thought that the hogs had "got to her" and gave the matter no further thought. In the course of a day or two he noticed that several others, including one of the older milch cows, were affected with some disease which seemed to attach the external genitals only, and was confined to the females of the herd. From this time the disease spread rapidly to other members of the herd. On examination the entire herd with the exception of the steers was found to be affected, showing the disease at various stages.

No new members had been added to the herd for some time, nor had the present members been allowed to mingle with other cattle.

Symptoms and Lesions—In most cases the disease manifested itself primarily by a slight tumefaction of the labia near the inferior commissure of the vulva. This was gradually increased in size until in many cases it would become as large as a hen's egg. In the center of this swelling a small ulcer would form, discharging a serous exudate rapidly forming into a thin brownish colored scab, becoming thicker with age. There was only a slight discharge of pus at any stage of the disease.

From this point of infection small fissures would appear, radiating from the central ulcer and giving the lesion a somewhat stellate form.

In advanced cases these fissures would reach a length of from one to two inches and a depth of about one-half an inch. Portions of tissue lying between these fissures would slough away, leaving a very angry looking wound. In several cases, principally those first affected, the entire labiæ had sloughed off. In the milder cases the crusts forming over the ulcers would become quite thick and when removed would leave a bleeding

surface. The mucous membrane of the vulva and vagina was highly congested, ranging in color from bright red to purple, and showed numerous ulcers, ranging in size from that of a pin-head to a pea.

The milder cases showed no constitutional symptoms. In the severe cases, however, there was a slight elevation of temperature, loss of appetite, dullness and constipation.

Treatment—This consisted in thoroughly washing the tail, anus and vulva with a 5% solution of creolin once daily. Under this treatment the ulcers healed rapidly, the progress of the disease was entirely checked, improvement being noticeable after the first two or three days. The milder cases required but four or five applications on successive days. The more severe cases received treatment once daily until recovery was almost complete, the most pronounced cases not receiving over ten days' treatment. Although a few animals were slightly disfigured, recovery was complete.

In this case only the females were affected, the steers showing no symptoms of the disease at any time. Age seemed to have very little influence on the course of the disease, or in the animals affected, young and old, from yearlings to old milch cows alike being attacked.

This curious affection is recorded as having prevailed in the winter of 1897-98 in different localities in Iowa, Missouri, Kansas and Nebraska. In 1900 and 1901 it was again reported in different parts of Iowa.

Etiology—The specific agent causing this disease has been given as the *Bacillus necrophorus*. Its appearance in isolated herds, which have no communication with other herds, and even in young cattle on a farm to the exclusion of the older ones, seems to suggest an enzoötic origin.

In an outbreak in Kansas the young heifers suffered, while the steers of the same age and old milch cows escaped.

A case is on record in this State where a bull from a healthy herd broke into an affected herd and served several

cows, afterwards being returned to his own herd and serving cows there, but did not communicate the disease. No case is on record showing a bull to have contracted ulcers of the penis or sheath after having served affected cows.

While in most cases the steers escape the disease, it is not always confined to the females. During an outbreak near Shelby, Iowa, eight out of twenty-two steers suffered. In all cases reported the outbreak has occurred during the cooler months and in most cases while the animals were confined in muddy yards.

The prompt recovery under antiseptic treatment indicates that no mere chemical poison maintains the destructive process, and leads us to believe in common with Mohler in the presence of a microbic agent as the causative factor. In regard to treatment, other agents such as Phenol 3-100, Mercuric chloride 1-500, or 1-1000 have been used with good results. Beneficial results are also obtained by touching the ulcers with silver nitrate.

OBSERVING FRIEND: "Your cow does not chew her cud. Yes, she is very sick." Scientific Farmer: "Impossible! She needs no cud. I feed her on pre-digested hay."

"WHAT is the cause of your cows being so thin?" "They are superstitious. They will eat only four-leafed clover."

"TEXAS FEVER AND THE CATTLE TICK" is the title of Bulletin No. 6 of the Department of Agriculture of Cuba, and is the work of Dr. Nelson S. Mayo, Vice-Director of the Department of Animal Industry. The Bulletin is published both in Spanish and English, and is well and profusely illustrated, showing the tick and its eggs, animals affected with the disease, and the various steps in immunization, together with specimen immunized cattle on the farm of the Estacion Central Agronomica at Santiago de las Vegas. Dr. Mayo's work in Cuba has reflected much credit upon the veterinary profession, and it is a great pity that Cuba is in such an unsettled condition, as it greatly interferes with the progress of the work. If the Cubans ever settle down to peace and prosperity, they will reap great benefits in their live stock industry through the work which Dr. Mayo has done.

RESEARCH ON PROF. VON BEHRING'S BOVOVACCINE.

By Dr. Wilfred Lellmann, Professor at N. Y. University.

It cannot be denied that von Behring's method of immunization against bovine tuberculosis has drawn the keenest attention of the entire civilized world. Ever since von Behring made known his first results of experimental work—on which he had been working silently for some years—quite a few scientific and practical men have been taking up immunization work on smaller or larger scales, according to their facilities. It can hardly surprise us, when we meet with contradictory statements as for the results of immunization; such is always the case with any new method of treatment. It should be remembered that the method in question has been at the mercy of the most trying circumstances, as in many cases gross offence has been committed against the rules of vaccination laid down by von Behring. I personally convinced myself on several occasions, where the principal rules were grossly neglected, and the success was accordingly.

I have made several hundred vaccinations and am satisfied to state, the bovovaccination, when done properly, is an absolutely harmless procedure.

Following I shall repeat the principal rules about using Bovovaccine:

The best age for vaccination is between three weeks and three months. Older animals are better submitted to the tuberculin test before being vaccinated. Sickly-looking calves and not in the best state of health are positively to be rejected.

The vaccine, which represents a yellowish-looking powder consisting of dried cultures of human tubercule bacilli (attenuated), is to be mixed thoroughly with the necessary amount of sterilized water. Before injecting the vaccine into the jugular

vein, the emulsion must be well shaken and certainly kept warm enough, as close to blood temperature as possible.

After the hair has been removed at the point where the injection is to be made, the skin should be well disinfected; the needle must always be sterilized thoroughly. After having introduced the needle into the jugular vein, the vaccine must be injected very slowly and under steady pressure. Furthermore, it is very important, not to excite the animal before, during and after the vaccination.

After each injection it is good practice to disinfect the skin once more and also rinse out the needle with 1% sterilized salt solution.

Two vaccinations are to be performed on each animal, the second three months after the first.

The first injection consists of one unit, equal to 0.004 gr. of the dried culture, suspended in 2 c.c. of sterilized water; the second vaccination of 5 units, equal to 0.02 gr. of the culture, suspended in 10 c.c. of sterilized water.

From the time of the first vaccination until three to four months after the second, the vaccinated animals should be kept strictly isolated and under the best sanitary conditions obtainable. I personally have been experimenting with a number of calves for nearly three years, and, although my work is not finished, yet I should like to publish in short the results of my experimental work so far accomplished.

No. 1.—Calf, two weeks old, vaccinated hypodermically, end of December, 1904. Second vaccination, end of March, 1905 (subcutan.). This calf got a third injection intravenously end of March, 1906 (5 units). Shortly before the third vaccination it was tested with tuberculin, no reaction. During July and September, 1906, each time fed with about 5 cgr. of a virulent culture of bovine tubercule bacilli. During February, 1907, again tested with tuberculin. No reaction.

No. 2.—Bull calf, two to three weeks old. Two intravenous vaccinations, the first beginning of January, 1905, the second

three months later. This animal was artificially infected (intravenously) with 1 cgr. of a highly virulent culture of bovine bacilli. This animal showed a local swelling at the point of injection, about two weeks after infection. In March, 1906, tested with tuberculin, showed a doubtful reaction ten hours after injection. with a temperature of 104.5, which, however, came down to normal inside of two hours. During the summer and fall of 1906 this animal was fed three times with virulent cultures. The first and the second time he got each time about 5 cgr. of a culture; the third time, during end of September, two-thirds of a virulent culture. During February, 1907, the animal was tested with tuberculin, but showed no reaction. Beginning of May the bull developed three abscesses at the neck and on the shoulder, which were located superficially. The pus of these abscesses was microscopically examined, but no tubercule bacilli could be found. The condition of the animal has always been good and the state of nutrition was good up to the 27th of May, on which day he was killed. The post-mortem revealed the presence of two or three little tubercles in the bronchial glands, which, however, appeared of normal size. The tubercles had undergone calcification. Outside of these lesions, I found a periproctal abscess, in the pus of which no tubercle bacilli could be traced.

No. 3.—Control calf of about the same age as No. 2. This calf was artificially infected simultaneously and with the same amount of the same culture (intravenously). It succumbed to infection after 26 days. On holding post-mortem, I found the lungs and the regionary lymphatic glands studded with innumerable tubercles, varying in size from a pinhead to a small lentil. Before infection the animal was tested with tuberculin and showed no reaction.

No. 4.—Control bull of about the same age as No. 2. During summer, 1906, this animal was fed twice of the same culture as No. 2 and each time with about 5 cgr. The third feeding took place end of September, 1906, together with No. 2. This time I gave one-third of an entire culture to the control

animal, and the two-thirds of the same culture to the vaccinated bull, as stated above. During February, 1907, this control animal was tested with tuberculin and showed typical reaction. This bull was very much emaciated. On May 25th the animal was destroyed, and, on holding a post-mortem, I found innumerable caseated tubercles, principally in the right lobe of the liver ; these nodules varying from the size of a lentil to that of a pea. I also found tuberculosis of the mesenteric glands; furthermore, there were some tubercles in the lungs and bronchial glands.

No. 5 and *No.* 6.—Two calves, each two to three weeks old. They got their first vaccination in April, 1905, and the second three months later. During end of November, 1905, these calves were infected artificially into the jugular vein; the one getting 1 cgr. of a virulent culture, the other 2 cgr. of the same culture. Together with these two vaccinated calves, I infected two non-vaccinated calves with the same quantity of the same culture and in the same way (*i. e.,* one of the control valves got 1 cgr. and the other 2 cgr. of the same culture). The control calf which got 2 cgr. died six weeks after infection. On holding post-mortem, the lungs and the bronchial glands showed plenty of tubercles (miliary). The two vaccinated calves and the other control calf were killed in January, 1906. The post-mortem proved the two vaccinated calves absolutely free from tuberculosis, while the second control calf showed quite a number of tubercles in the lungs and the regionary lymphatic glands.

No. 9 and *No.* 10.—Two bull calves, each about three weeks old. They got their first vaccination beginning of March, 1906. Three months after vaccination, they were exposed to natural infection by being in direct contact with a highly tubercular cow for nearly four months. During this time they were confined with the cow in an old barn with exceedingly poor sanitary conditions. During end of June these two bull calves, which are both pictures of health, were tested with tuberculin and showed no reaction.

This series of experiments proves the immunizing power of Bovovaccine. Artificial infection, through the jugular vein as

well as through the digestive tract, proved the vaccinated animals to be well immunized from four months until nearly two years after vaccination. Considering the fact that I made the infections with unusually large quantities of virulent cultures, the post-mortems demonstrated that the resistance of the vaccinated animals against infection was remarkable. Calf No. 2 gives us an instance of what a high degree of immunity an animal is apt to acquire after bovovaccination; for the quantities of tubercle bacilli with which this animal was infected, I suppose, would have been sufficient to destroy at least ten to twenty animals.

As I stated above, my experimental work is still going on, and in due time I shall continue my publications.

A PESSIMISTIC CORRESPONDENT of the *Veterinary Journal* (London), complaining of the overcrowding of the veterinary profession upon the British Isles, has caused the editor to look up the statistics, and the following facts are shown: In 1905-6 the number of new graduates exceeded the deaths by only five (80 to 75). The aggregate for the past four years shows an excess of 34 graduates over deaths (314 to 280), or an average of about 8 per year.

"THE IMPORTANCE OF MEAT AND DAIRY INSPECTION" was the subject which Dr. W. H. Dalrymple, Veterinarian of the Louisiana State University, handled at a Conference of Health Boards recently. It has been published in pamphlet form, and makes a powerful argument for the importance and necessity of competent veterinary supervision of these products. It is modestly illustrated, though the cuts are of such practical value that they greatly assist in making the text plain and appealing. Dr. Dalrymple, being a prominent figure in comparative medicine in the South, is in great demand where health subjects are discussed, and as his audiences usually consist of leading physicians, health authorities, and intelligent stockmen, the good he accomplishes for the veterinary profession cannot be overestimated. He always holds the veterinary banner on high, and his hearers are brought to a higher realization of the wonderful possibilities of the veterinarian as a sanitarian. A Dalrymple in every community would be a blessing to human as well as veterinary medicine.

MODERN VETERINARY METHODS.

By Walter J. Taylor, D. V. M., Ithaca, N. Y.

IMMUNITY.

EXPLANATION OF ACQUIRED IMMUNITY.

Ehrlich's Side-Chain Theory.

II.—*Bacterial Immunity.*—The theory concerning bacterial immunity as described by Ehrlich, is the direct result of a series of investigations and experiments carried on by different investigators some time previous to the establishment of his "side-chain theory." In order that a better understanding may be had of the terminology and the application of this theory in relation to bacterial immunity, a short résume of experiments leading up to the formulation of such a theory is appended.

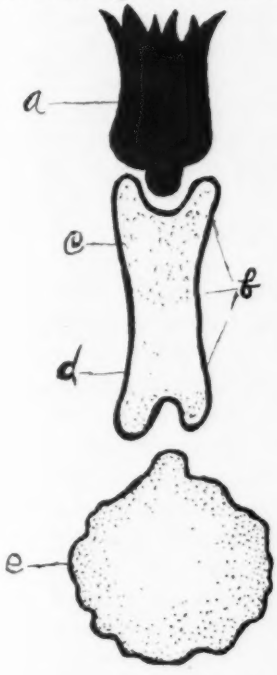


Fig. 1. Drawing showing the action of the amboceptor; *a*, alexin or complement; *b*, amboceptor with, *c*, toxophorous, and *d*, haptophorous combining group of atoms; *e*, cell upon which complement acts. After Ehrlich.

In 1898 Belfanti and Carbone showed that if horses were injected with the red blood-cells of rabbits, the serum thereafter obtained from the horses would have acquired an appreciable toxicity for rabbits. Shortly after this Bordet published a very interesting series of experiments in which he showed that the serum of guinea pigs after these had been injected several times with 3 to 5 c.c. of defibrinated rabbit's blood acquired the property to dissolve rapidly and intensely, in a test tube, the red blood cells of a rabbit; whereas the serum of a normal guinea pig is incapable of doing this, or does it only in a slight degree. Bordet further showed that this action is a specific one, that is, the serum of animals treated with rabbit blood acquires this dissolving property only for the red blood of rabbits, and not for those of any other species of animal. For other species, the serum of an animal thus

treated is no more strongly solvent than the serum of a normal untreated animal. Later, this same property was shown for the sera of all animals treated with the serum of another species. The term given to this phenomena was hæmolysis, and the substances which affect the solution of the red cells, hæmolysins or hæmotoxins.

Bordet now turned to a further study of the action of hæmolysins, and was able to show that the solvent power of the specific hæmolysins depended on the combined action of the two constituents of the specific serum. When the fresh hæmolytic serum was heated for half an hour at 55° C., it lost its power. If to this *inactive serum* a very small amount of the serum of a normal guinea pig was added, the full hæmolytic power was restored to this inactive serum. In other words, it had been *reactivated* by this addition. This experiment demonstrated conclusively that the hæmolytic action of the specific hæmolytic serum depends upon two substances. One of these is able to withstand heating to 55° C., and is contained only in the specific serum. The other is destroyed by heating to 55° C. and is contained not only in the specific hæmolytic serum, but also in the serum of normal untreated animals.

Previous to this work Buchner had shown that there were constituents of the normal blood serum which were actively destructive to corpuscular elements, bacteria, and other cells with which they came in contact. These substances had been termed *alexins* by Buchner. This term was retained by Bordet to designate that constituent of normal serum which did not withstand heating to 55° C. and which was one of the factors in the hæmolytic process. The other substance which was found only in the specific serum and which withstood heating to 55° C., Bordet termed *substance sensibilatrice*. According to Bordet, therefore, the substances required for hæmolysis are the substance sensibilatrice of the specific hæmolytic serum and the alexin which exists even in normal serum.

This specifically increased solvent action for foreign corpuscular elements on the part of sera of animals previously treated with the same, could not fail to be of the greatest interest to bacteriologists; for a most surprising similarity showed itself between this and the well-known facts of artificial immunity against bacteria as worked out by R. Pfeiffer.

In 1889 Pfeiffer found that by injecting simultaneously into the peritoneal cavity either a lethal dose of cholera vibrio and

serum from an immune animal or injecting the vibrio into an immune animal, the organisms lose motility, become spherical and then undergo granular degeneration and finally disappear, while the animal remains well. This reaction constitutes what is known as Pfeiffer's phenomenon.

In the above experiment we see clearly demonstrated the similarity of reaction produced by the solvent power of the blood serum of an animal for the corpuscles of the blood of another species with which the blood of the first species has been treated, and the solvent power of the blood of an animal for a particular species of infecting organism after that animal has been immunized against that organism, or is treated with the blood of an immunized animal. As already stated, the reaction observed in the first case is caled hæmolysis, that of the second *bacteriolysis*. This process, as shown by Pfeiffer, is a specific one, *i.e.*, the serum of an animal treated with the cholera organism transmits an increased solvent power for that organism only and not for any other species of bacteria. Out of this experiment, as demonstrated by Pfeiffer, has grown the simultaneous method of vaccination for the production of immunity.

Ehrlich, in his application of the "side chain theory" to bacterial immunity, was able to demonstrate that the reaction depended upon two substances, the one having an affinity for the bacterial cell and corresponding to the *substance sensibilatrice* of Bordet and which was present only in the immune serum, the other a substance present in all normal sera and corresponding to the alexin of Buchner. To the first Ehrlich has applied the term *immune body or amboceptor* and to the latter he has given the name *complement* in order to express the idea that this body completes the action of the amboceptor. He was further able to show that the amboceptor had two combining groups of atoms. One of these groups has affinities only for the bacterial cells and to which he gave the name haptophorous, the other possesses affinities only for the complement of the normal serum and which he has termed the toxophorous group. The alexin or complement of the blood having no affinities in common, can therefore only unite through the medium of the immune body or amboceptor.

Illustration.

It is a well-known fact that the haptophorus group of the amboceptor which attaches itself to the bacterial cell possesses a much stronger affinity for that cell than the toxophorous

group possesses for the alexin or complement except at a temperature corresponding to that of the animal body at which temperature it becomes more active. According to Ehrlich, then, the role of the amboceptor consists in tying the complements of the normal serum, which have no affinity for the bacteria, indirectly to those bacteria so that their solution and digestion may be affected by the complement. In other words, the amboceptor serves to concentrate on the bacterial elements to be dissolved all the widely distributed complement found in normal serum. The difference, then, between a specific bacterial serum and a normal one consists in the fact that the specific serum contains an amboceptor which is specific for a certain cellular element in the form of bacteria, and by means of which the complement present in all normal serum can be concentrated on this cellular element to cause its solution.

From the foregoing conclusion, it will be seen that by employing an immunizing agent in the form of a bacteriolytic serum a certain number of amboceptors may be given to overcome an infection due to a specific infecting organism. With the rapid strides now being made along these lines and with the ever increasing knowledge concerning the nature and application of immunization to our domestic animals, it is safe to assume that in a comparatively short time, the up-to-date veterinary practitioner will be able to measure the dosage of amboceptors in a relatively definite proportion to the infection with which he is dealing.

(To be Continued.)

"Not Superstitious.—"Do you think a horse chestnut will cure rheumatism?" "I don't know, but I would rather chance a horse doctor."

Killed by a Blow From Cow's Tail.—*Binghamton, N. Y.*, Aug. 17.—A blow from a cow's tail caused the death of William A. Wells, a prominent resident of Newark Valley. Mr. Wells was in good health and attending his farm chores when a cow he was milking switched her tail, striking him on the forehead with the fleshy part of the appendage. He went to the house, complaining of a pain in the head. It grew rapidly worse. A physician pronounced death due to a stroke of apoplexy superinduced by a blow from the cow's tail. Mr. Wells died last night.—(*N. Y. Press, Aug.* 18, 1907.)

REPORTS OF CASES.

SUDDEN DEATH OF A MARE FOLLOWING PARTURITION.*

By F. R. AHLERS, V. S., Iowa.

In order that we may arrive at a better understanding of the thought I bring to you to discuss, I will endeavor first to portray an example: Because of the rather unusual, and I may say, unlooked-for termination of what at first thought is apparently an ordinary, simple and easily-managed case, we have called to mind the fact that these apparently simple cases possess possibilities which we, being aware of them, must respect and guard against.

The case mentioned was a large draft mare, six years old, and in good condition. Though expected to foal, the owner did not have her under constant observation, so on arising one morning found labor begun and the head of the fœtus protruding from the vulva. The general appearance of the mare, however, indicated that she had perhaps not been more than an hour arriving at this state of affairs. On arriving an hour later I found an anterior presentation with one foreleg retained. Attempts to repel the fœtus were in a measure successful, but not sufficiently so as to allow the retained leg to be brought into position, the continued and violent labor pains preventing.

I put the mare sufficiently under the influence of chloroform to allow me to repel the body of the fœtus, when by placing the sharp spur of the jointed repeller against the posterior face of the radius just above the knee I was able to flex all joints sufficiently to allow the foot to be brought over the brim of the pelvis. Delivery followed easily, the placenta following immediately. The mare seemed perfectly at ease, arose to her feet, and was soon removed to the stable, where she began to eat hay and was so an hour later when seen by the owner. In another hour she was dead.

I did not have an opportunity to hold a post-mortem, so will have to theorize: Post-partum hæmorrhage would cause a like result, though symptoms of weakness and distress would be observed at least an hour prior to death. Such hæmorrhage is not

*Presented to meeting of Iowa Veterinary Association, Jan. 28, 1907.

apt to occur when the fœtal envelopes detach, as in the above case, at the time of delivery or before that event. A rupture of the uterus sufficiently large to allow such serious hæmorrhage would in all probability be accompanied by the prolapse of a bowel. Also some blood would be in evidence externally. Ruptures of the uterus of this extent are comparatively often seen, but the accompanying hæmorrhage is not a factor in the cause of death. In this connection, we might observe that the pressure of a gas-distended prolapsed bowel on the lacerated uterine edges would in a measure exert a hæmostatic influence.

A more plausible explanation of the case may be arrived at on considering the rôle that pulmonary emboli play in many cases of sudden death in the horse, and that we have conditions favorable to their production in a recently delivered mare. A recent thrombus may form as a consequence of the necessary, though not excessive manipulation of the uterus during labor. Or even the normal contraction of a gravid uterus when an obstacle to delivery exists may be the factor. Remembering that with a partial or complete separation of the placenta from the uterine walls prior to delivery, followed by the repulsion of the fœtus from the vaginal passage into the uterus at a time when all parts are relaxed because of the anæsthetic administered, the introduction of a considerable volume of air is not unlikely to occur. The uterine veins, at this period veritable sinuses, have, in the subsequent contractions, this air forced into them. From the normal congestion present at this period it follows that a considerable volume of blood is brought into contact with this air. The natural sequence is a thrombus. That this may pass readily into the general circulation is apparent on remembering the absence of valves in the uterine veins.

We have doubtless seen many cases where manipulation and bruising of various parts of an animal's body, more excessive even than in this case, did not result in the production of a thrombus; also have injected air directly into veins during the process of intravenous injections without that result. The blood of all pregnant animals contains fibrinogen and paraglobulin in large quantities. These necessary elements to coagulation are found in the blood whether the animal is pregnant or not, but in the quantities that they occur in the pregnant we have offered the means of producing a thrombus should any of the other necessary adjuncts to coagulation be present.

It does not follow that this thrombus is set adrift immediately on forming, but when the congestion subsides the altered blood pressure makes the production of the bolus soon after delivery the more likely to occur at that time. Sudden movements or the force of a powerful contraction after delivery may send the thrombus into the blood current. That the embolus lodges in the pulmonary artery is merely the contingency seen in my case. That its final mooring may be in some other and less vital part is equally as likely. I have no statistics showing the relative frequency of the finding of emboli and thrombi in the mare and horse, but think here is certainly an explanation of the production of a percentage of them.

In the discussion which followed several members reported somewhat similar cases. Dr. S. Stewart suggested the possibility of death being caused by thrombus going to the brain and producing embolism of cranial vessels, or a toxine being formed. Dr. W. A. Stuhr suggested fibrin ferment formed in uterus and being carried to parts where circulation is sluggish, which is an ideal place for infarct.

RUPTURED UTERUS IN BITCHES.

By Francis Abele, Jr., D. V. S., Quincy, Mass.

I find very little literature on rupture of the uterus in the bitch. Some good works make no mention of the same. A diagnosis is quite valuable, yet not so simple as one might expect.

Case I.—Boston terrier bitch, six or seven years old, heavy with pups, two days overdue, milk in udders, abdomen immense in size, no discharge from vagina and vulva not swollen, more quiet than usual, no labor. No pup in reach to finger.

Diagnosed rupture. Next day no change except less active. Third day had another veterinarian in consultation. She seemed quite weak; mouth clammy, extremities cold; decided to use forceps and reach for pups. First hold brought pup's head and thickness of uterus in same grip. Evidently forcep had found pup in the hernial opening. Bitch died, and on post-mortem a large old rent was found just about the bifurcation, while one other pup was completely free in the abdominal cavity.

Case II.—A fox-hound bitch, two days short of pupping, had had pains, now stood humped, abdomen tense, swollen, very sore to touch, mouth open, cold and clammy, ears and legs cold. With fingers caught hind legs of pup. Drew him out by towel

around his legs. With him came the uterus fundus and one long and short length of cornua. The long one, that which held this pup, had a gangrenous end. I destroyed bitch, and a post-mortem revealed mated ends of cornua. The one fresh, mating the healthy everted end; another gangrenous, mating the gangrenous everted end. Other pups were in the tips of the two cornua. There was peritonitis apparent in the abdominal cavity.

COMPLETE TORSION OF THE UTERUS IN A MARE.

By W. M. PRENDERGAST, D. V. M., Phoenix, N. Y.

On April 11th, I was called to see a brood-mare, 11 years old, which the owner said had been suffering attacks of colic for the past ten days.

History.—This mare had been kept in a box-stall. On the morning of April 1st the owner found her straining violently and in great pain. A non-graduate practitioner, who was called in, treated the mare for indigestion. These intermittent attacks of pain and straining continued up to April 11th, when I was called to see the mare.

Symptoms.—The mare did not seem to be in much pain, but was in a state of great depression. Pulse 70, very weak, temperature 104.5; examined per vagina. Anteriorally the vagina was constricted and drawn forward. The os uteri was almost obliterated, and no passage could be forced into the uterus. These attempts brought on violent straining. Examined per rectum, just anterior to cervix a hard knot-like structure was discovered.

Diagnosed torsion of the uterus. As the mare was in such a weak condition, no attempt was made to reduce the torsion. The mare died on the following day.

Post-mortem.—Great quantity of blood in abdominal cavity. The base of the uterus showed an extensive rupture, about 20 inches long, through which the dead fœtus had escaped into the abdominal cavity. There was a complete torsion of the uterus, about six inches anterior to cervix. The torsion was from right to left. The walls of the uterus were gangrenous and adherent to the large colon.

CAT WITH TUBERCULOSIS.

By FRANCIS ABELE, JR., D. V. S., Quincy, Mass.

An Angora cat had difficult respiration of two days' duration; was gasping. The medical doctor had left strychnine pills for a member of family, about one-quarter of solution from one human tablet was given at intervals, to cat, with only temporary results. Two years previous this cat was born with assistance, mother and rest of litter died. When I castrated this cat, he was taken with syncope and I was informed that he had it often. Some time later enlarged parotid gland, not forming abscess, appeared. I told my suspicion of tuberculosis. Some time later was called to the two days' attack of difficult respiration. Recommended destruction of cat. Died on way home. Post-mortem showed miliary deposits on pleural surfaces in great numbers. One lobe of lung yellow and solid. Showed it to medical doctor for that family, and we agreed that the cat probably got the disease from one of the members of the family, who appears affected, though this is not positively known.

SEPTIC MILK INFECTS BABY.

By FRANCIS ABELE, JR., D. V. S., Quincy, Mass.

Was asked advice as to new milkman to supply baby. The child had had serious sore throat which medical doctor attributed to milk supply. It turned out that they had been getting milk from a milkman who had just lost a cow (to my own knowledge) from septic metritis due to retained placenta and who had another cow decubitus from the same trouble. It appears to me that the medical doctor was correct. He does not know now these facts. I wonder if these conditions of septic infection are not really frequent but unsuspected.

GALLOGEN IN THE TREATMENT OF SCOURING HORSES.

By G. A. KNAPP, V. S., Millbrook, N. Y.

A driving horse in an emaciated condition, suffering from chronic diarrhoea, came into my possession about four months ago, and I at once started treating him with the mixtures usually used in such cases. An improvement was at first noted, but

in a few days the horse was as bad as ever. About that time the intestinal astringent sold by C. Bischoff & Co., of New York, was brought to my attention. After using it for three days a marked improvement was noted; its continual use for three weeks has completely cured the animal, which was before practically worthless. I have since used the drug in similar cases with astonishing results.

Having obtained such beneficial results with Gallogen, I consider it to be the greatest drug of its kind on the market.

RUPTURED UTERUS IN COW.

By Francis Abele, Jr., D. V. S., Quincy, Mass.

Cow was overdue; did not strain; had ceased eating. Keeper thought she had dead calf. Much œdema about and in front of udder. Removed calf with almost no trouble and no labor pain. Hæmorrhage in womb led me to examine uterus, where was found large rent on inferior surface. She died.

Old Lady to Druggist: "I want a box of canine pills?" Druggist: "What's the matter with the dog?" Old Lady (indignantly): "I want you to know, sir, that my husband is a gentleman!" Druggist puts up some quinine pills in profound silence.

Prosecution of Illegal Practitioners in New Jersey.—Dr. George Locke, of Flemington, N. J., indicted for practicing veterinary medicine without a license from the State Board of Veterinary Medical Examiners of New Jersey, has been convicted and sentenced to imprisonment in the Hunterdon County (New Jersey) jail for sixty days. Dr. Asa Thomas, graduate of a correspondence school at London, Ontario, commenced practice at South Amboy, N. J., without complying with the laws of New Jersey. Thomas has been arrested and put under $300 bail awaiting the action of the Grand Jury. Dr. Fred. Eason, of Englewood, N. J., who claimed to be a graduate of the Royal College of Veterinary Surgeons, London, England, not long since was arrested and fined $100 for attempting to practice in New Jersey without a license from the State Board of Veterinary Medical Examiners.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Rupture of Chordæ Tendinæ in the Horse [*John Campbell, M.R.C.V.S.*].—This five-year-old mare some fourteen days previously had collided with a cart, and after the collision, when ascending a hill, she stopped and refused to go, apparently turning breathless, but after resting for a minute or so she proceeded all right and worked without giving any further trouble until the time of this record. And yet her general appearance gave little assistance to a correct diagnosis. If allowed to stand quietly, she showed no signs of suffering, but moved out of her stall with difficulty. Her breathing was normal, pulse frequent and irregular, temperature 106° F. The case was diagnosed as pericarditis. Stimulants and febrifuges with counter-irritation to the chest were prescribed. After four days the mare died. Post-mortem: Large quantity of fluid in the peritoneal cavity, posterior vena cava and abdominal veins as well as the liver and spleen were gorged with blood. Lungs pale and anæmic, pericardium thick and congested, and on the right side of the heart about three-fourths of the chordæ tendinæ were ruptured.—(*Veterinary Record.*)

Puncture of the Diaphragm and Stomach—Survival for Nine Days [*H. G. Allen, A.V.C.*].—It is the concise record of a mare which staked herself when going over a jump. She inflicted upon herself a wound on the off-side of the thorax at the lower third of the intercostal space between the seventh and eighth ribs. There was a large œdematous swelling which was treated antiseptically. The animal progressed well for the first eight days, showing only some slight abdominal pains. On the eighth day following the accident there were marked evidences of peritonitis, which carried her away on the ninth in the afternoon. At the post-mortem were found localized patch of pleurisy, puncture of the diaphragm, puncture of the stomach and extensive lesions of peritonitis, with food in the abdominal cavity and the omentum.—(*Veterinary Record.*)

Torsion of the Uterus in a Cat [*G. H. Williams, F.R.*

C.V.S.].—A four-year-old cat had a last lot of kittens at Easter. Lately she is in pain, looses flesh and refuses food. The anterior portion of the abdomen is bulging, the flanks and the posterior part of the abdomen are hollow. Enlarged liver is suspected. To avoid more suffering the cat is destroyed. The uterus is gravid and twisted on itself anterior to the os. The twist forms a cord of four folds along the floor of the abdomen, the major part being spread out into two parts extending to the diaphragm, liver and stomach. The left horn contained two fœtuses, the right, one. The uterine wall was nearly an inch in thickness and very congested. There was about one pint of hæmorrhagic fluid in the uterus.—(*Veterinary Record.*)

PARTURIENT LAMINITIS IN A COW [*Henry B. Eve, M.R.C.V.S.*].—In plethoric condition a three-year-old cow had been delivered of a dead calf, but she had not cleaned properly. Two days later she was standing with symptoms similar to those noted in horses suffering with laminitis. She appeared unable to move and when made to do it, it was evident that the weight of the body was thrown on the heels, the former being as it were swung from side to side as the limbs were advanced. The animal had an anxious face and was in pain. The hoofs were hot, sensitive to the touch, and painful on percussion. Loss of appetite, dry muzzle, high temperature of 106° F., hurried respiration, quick pulse, great thirst. Parturient laminitis was diagnosed and guarded prognosis given, as septic pneumonia was feared. Treatment: Removal of contents of the uterus, disinfection with chinosol and injections of glycerine and extract of belladona. Internally, saline aperient and febrifuge draught. Local treatment of poultices to the feet and mustard on the chest. Finally stimulating liniment on the coronets, standing on sawdust, good nourishment and stimulants with tonics. Complete recovery eventually took place.—(*Journal of Compar. Path. and Ther.*)

STRYCHNINE POISONING IN A DOG [*T. Hodgins, M.R.C.V.S.*].—Interesting case by the fact of the length of time before the appearance of the symptoms. A drawer containing tablets of strychnine was upset and a toy ruby King Charles spaniel, of nine months, was observed chewing something in the place where the drawer had fallen. Two hours after, he manifested symptoms which left no doubts as to the nature of his troubles. Convulsions, opisthotonos, impeded respiration, anxious expression of countenance, eyeballs staring, pupils dilated. Notwithstanding bromide of strontium, injections of sulphate of morphine, death

took place from asphyxia during a paroxysm. The dose of poison must have been very small, and the fact that the dog had just eaten its meal may account for the length of time, two hours, before the poison manifested its effects.—(*Veterinary Journal.*)

INTERESTING TWIST OF THE BOWELS [*Guy Sutton, M.R.C.V.S.*].—Hackney gelding, aged 28, manifests sub-acute abdominal pains. His appearance is not very distressful, pulse rather weak, temperature 101° F.; rectal examination is negative. He receives for treatment sedatives, antizymotics, intestinal stimulants, glycerine enemata and local applications to the abdomen. Chloral was given during the middle of the night and the horse dies twenty hours from the time when first noticed in pain. Post-mortem: Ruptured stomach, which probably occurred at the point of death, and a twist of the intestine around the peduncle of a lipoma on the mesentery.—(*Veterinary Journal.*)

INVAGINATION OF THE CÆCUM EXISTING FOR THIRTY DAYS IN A PONY [*Guy Sutton, M.R.C.V.S.*].—Polo pony has violent colic, which is subdued with morphine, enough to allow an examination, which is rather negative. Animal is in great pain for twenty-four hours. Towards the end of the second day these pains seem to abate and comparative ease is manifested. Temperature is 104° F., pulse 65, irregularly intermittent. No fæcal passages have occurred since four days. Strychnine, carbonate of ammonia, belladonna are prescribed. On the seventh day bowels moved. Temperature is a little lower. After a while improvement seems to manifest itself, but after a few days all the bad symptoms return and death takes place a full calendar month from the onset of the symptoms. When the abdomen was opened the cæcum was found missing and the colon enormously distended. Cutting through the walls of this organ, the cæcum was found completely invaginated in it. It was not green in color and not putrid. The cæcal walls were œdematous and thickened.—(*Veterinary Journal.*)

PIN IN THE RECTUM OF A DOG [*G. H. Livesey, M.C.R.V.S.*].—The record of a case occurring in a black toy Pomeranian puppy, four months old, which had swallowed the pin and presented the usual symptoms of diarrhœa, vomiting, convulsions, excessive sensibility, etc. The anus was tightly closed, and it was with difficulty that rectal examination could be made. About one and a half inches from the anus a foreign body was felt transversely across the rectum. It was eventually secured by one end

and extracted. It was a common pin. It was said that this was the second time this thing had taken place with the dog, but in the first instance the pin passed without trouble.—(*Veterinary Journal.*)

Two Cases of Scrotal Hernia in Calves [*H. E. T. Mason, M.R.C.V.S.*].—These two animals had been previously castrated, but both when seen by the author had swelling of the scrotum due evidently to scrotal hernia. In the first case it was reducible. As no clams to fit the case could be found, on account of its size, useless attempts were made to treat it with suspensory bandages. The treatment proved unsatisfactory and the animal was slaughtered. In the second, the enlargement was bigger, very hard and irreducible. Clams were out of the question. Massage was resorted to, and, although it seemed to do good, it took six weeks before the animal could be discharged with a scrotum very little larger than normal. With daily gentle massage it had come quite right.—(*Veterinary Journal.*)

Interesting Case of a Needle in the Œsophagus of a Kitten [*Prof. G. T. Dunne, M.R.C.V.S.*].—A seven-months-old kitten was suspected of having swallowed a needle with thread. On account of her struggles, it was necessary to chloroform her, so as to make minute examination of the mouth. This was negative. The neck, trachea, œsophagus were carefully explored, but nothing was found. The case was almost laid down as one of laryngitis, when the animal suddenly sneezed and simultaneously a hard, fine point was felt beneath the skin, close to the entrance of the chest. An incision made down on the part brought to light the needle and thread, *eye first,* protruding through the œsophagus. They were removed, and after two days of milk diet the kitten was all well.—(*Veterinary Journal.*)

GERMAN REVIEW.

By J. P. O'Leary, V.M.D., Bureau of Animal Industry, Buffalo, N. Y.

Reports Concerning the Use of Hydrogen-Peroxide (Perhydrol-Merck [*Dr. Aug. Zimmermann*].—In the ambulatorium of the Imperial Veterinary High School, Hungary, hydrogen-peroxide has been used extensively for the last five years in the treatment of various wounds, fistulæ, in otitis, eczema, stomatitis, as a mouth wash, and finally as a collyrium. This

preparation seems to be especially suitable for loosening bandages which have become firmly adhered to wound surfaces. Its effervescent action producing foam when in contact with wound secretions, renders easy the removal of bandages from raw surfaces without causing pain or bleeding. In dogs which are subject to otitis externa, H_2O_2, 10%, may be used in the beginning; later a 30% concentrated solution may be applied with good effect. In extensive ulcerations this remedy causes an intense itching sensation when first applied, but after swabbing out the parts thoroughly three or four times the wound becomes covered with epithelium and the irritation entirely disappears. When the preparation is poured on the surface of wounds, especially wounds or ulcers in the hidden parts of the ear, we can hear an effervescent sound as the peroxide acts upon the pus and blood-clots. The secretions and disagreeable odors emanating from within the ear are diminished and removed. After the H_2O_2 acts on the ear for several minutes the internal surface is to be swabbed out and thoroughly cleansed; then in 24 and 48 hour intervals this treatment is to be repeated until in the course of a week or eleven days complete recovery will follow. A 30% solution is very useful in the treatment of moist eczema; in the most stubborn cases the moisture disappears after a few days and the humid surface will dry by the action H_2O_2 tampons. The inflammation and irritation soon disappear. H_2O_2 can also be used mixed with glycerine, equal parts, or 1—3, also mixed with lanolin. (1 to 1.5 H_2O_2 as a salve.) It can also be used with advantage undiluted and without a mixture, as 30% hydrogen-peroxide. In stomatitis it can be prescribed for horses and dogs. It is particularly recommended in stomatitis ulcerosa of dogs, when in a few days after its application the disagreeable odor completely disappears. The ulcers are changed into fresh appearing, nice, granulating, clean wound surfaces with no tendency to bleed. As a result of its hæmostatic action it can be used as a tampon in the extraction of teeth. On account of its antiseptic action and as it does not possess any irritating or other disagreeable properties it can be used in the various wounds of the mucous membranes as gingivitis and wounds of the tongue, which are of frequent occurrence in horses. As a collyrium it is recommended in weak solution (0.5—1%), particularly in traumatic ulcers of the cornea. Further, it exercises a favorable effect in conjunctivitis with profuse secretion.—(*Zeitschrift für Tiermedicin*, 1906, *Heft* 1. 2.)

CONTAGIOUS OPHTHALMIA IN CATTLE [*Jermolajew*].—The disease was brought into the Semenows district in the fall of 1901 by a cow affected with the malady. The animal, having been purchased in the Makarjew district, was allowed to mingle with the herd and infected one animal after another, so that at the date of inspection 30 diseased animals were discovered. Notwithstanding isolation, the healthy cows contracted the disease. On acccount of the intense frost in the year 1901, the infection was confined to three villages. During the warm summer in the year 1902 the malady set in again with renewed vigor and spread in spite of all precautions over other districts so that in the year 1903 all the cattle in some villages had been infected. The period of incubation was very short, as cattle suffering from a slight degree of lachrymation and which had been isolated, conjunctivitis set in the following day. It was interesting to note that the larger per cent. of animals were affected in one eye and that the infection spread very rapidly. The author assumed, from the following facts, that the infecting agent might be found in the abundant secretion of tears. Flies are the distributors of the contagion. They swarm in large numbers about the eyes and which follow the direction of the secreted matter which follow the direction of the secreted matter which flows from the eye. The manner in which an eye becomes affected depends upon the direction of the wind, as the flies do not alight on the side from which the wind blows, but rather on the opposite side. A hot, dry summer and dust are particularly favorable to the propagation of the disease. The first symptoms are those of an intence lachrymation, swelling of the eyelids, injected conjunctiva, the animal droops its head, the cornea assumes a milk-white color, with intensely injected blood vessels, and photophobia; the eyeball is elastic. After the lapse of a few days an elevation about the size of a hempseed appears on the surface of the cornea, almost in the center. This ruptures and discharges its contents, leaving behind a circular ulcer. The course of the disease is usually favorable. In a few cases spots and cicatrices remain upon the cornea. Recovery takes place in from two to four weeks. Treatment: Dark, cool stable, cold applications, a collyrium of ½ to 1% solution of creolin, a 3 to 4% solution of boracic acid, also dusting with calomel and sugar equal parts.—(*Veterin. Feld. Westnik*, 1904, 18.)

THE SIGNIFICANCE OF THE NEGRI BODIES IN THE DIAGNOSIS OF RABIES [*Dr. Ernest München*].—Since Negri published his

studies on the etiology of rabies, a number of control experiments have appeared, and at present there is scarcely a doubt arising that the Negri bodies are the only specific microscopical criterion of rabies. The author refers in his report to the technique of the examination, the size and shape, the location and the importance of the Negri bodies. The fresh examination can easily lead to confusion of the cell nucleus or myaline globules with the Negri bodies. Therefore, the rapid imbedding process recommended by Bohne, by means of aceton-paraffin in combination wth Mann's customary staining method is much more recommendable, because with this the bodies can be demonstrated with remarkable certainty and rapidity. As the bodies hitherto were found only in the central nervous system and there again in the first instance in the cornu ammonis and afterwards in the cerebellum, sections are to be made ½ to ¾ m.m. thick of the cornu ammonis and then immersed in 15 c.cm. of pure aceton and allowed to remain there for 35 to 40 minutes at 37° C. until they assume the firmness of alcohol hardening. When the brain substance has undergone putrefaction this procedure must be prolonged, then the sections must be placed for 60 to 70 minutes in paraffin at 60° C., which has a melting point about 55° C. After solidifying, the paraffin block can be cut with any microtome. The whole process occupies about two and a half hours. For staining, Mann's eosin methylene blue mixture is used, as the bodies can be plainly discerned in from ½ to 4 minutes after. Nevertheless, the author obtained his best preparations when the sections were treated for a short time with a diluted alcoholic picric acid solution, after being previously stained according to Giemsa (new modification). The ground substance of the Negri bodies is then brown violet, basophile parts black. The other staining methods need not be mentioned here. The size and shape of the negri bodies vary extremely, from the very minute 1—1.5 microns in diameter they go through a series of growths, accretionative in form, until they attain the diameter of 10-15 microns and not rarely we see forms whose dimensions in comparison to the original are in truth enormous. The smaller are mostly spheroidal, the medium round or oval, and the large oval, elliptical or pear-shaped. As the bodies lay mostly intracellular in the ganglion cells, their shape is somewhat dependent upon the form of the cell. The bodies consist of a hyaline membrane and a basement substance. Within these latter lay one to three spherical opaque

formations, so-called large inner formations. Around these, distributed with more or less regularity in the ground substance or in the periphery, lay smaller, glistening, so-called small inner formations. Both contain punctiform, ring, rod, or dumb-bell-shaped indentations and vacuoles. The bodies appear first toward the end of the incubation period in the region of the nerves. In the incipient stage of the clinical symptoms, the bodies are very minute or perhaps cannot be identified. The shorter the duration of the disease, the fewer and smaller the bodies appear. The largest forms were hitherto found in dogs and cattle. Until now, the Negri bodies have been found only in rabid patients or animals dead of the disease. In all kinds of nervous diseases and in healthy dogs we seek in vain for these bodies. If we inoculate animals with brain substance, which contains the Negri bodies, the animal sickens with the disease. Negri considers that the bodies are parasites, perhaps sporozoa. Still at present it is a disputed question whether the bodies are a developing stage of the parasites of rabies or a product of it. Concluding, Ernest presents the following chief points:—(1) In 96-99% of rabid cases we always find, when the clinical symptoms have already appeared, intracellular bodies (Negri bodies) in the central nervous system, which are not seen in any other disease or in health. (2) The microscopical diagnosis of rabies is still possible, where inoculations, on account of the putrefactive condition of the materials used, or from any other cause, would give a negative result. (3) When the Negri bodies are positively discerned the inoculation test can be dispensed with. When the histological test proves negative, the inoculation test is imperative. (4) The diagnosis of rabies through the Negri bodies is always possible in 96-98% of cases in from three to four hours by means of the aceton-paraffin method. (5) Whether we have before us in the Negri bodies a developing stage of the parasite of rabies or a product of the parasite and of cell reaction, is at present a disputed question.—(*Berliner Tier Wochensch., No.* 24.)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Lipomas of the Omentum in a Horse [*Mr. Hurpez*].—The subject is a horse, aged, which has always had difficult diges-

tion, accompanied with colics. These little by little became more frequent and more severe until finally he died with one. The post-mortem revealed a well-marked and extensive congestion of the small intestine with some adhesions with the cæcum and with the large colon. Numerous tumors, dark red, looking like chicken combs stuck together and very large, cover the entire surface of the large colon, cæcum and small intestine. On the folded colon they press upon the organ and squeeze it, so as to give rise to the formation of two dilatations, where the fæcal substances circulate with difficulty. These tumors are lipomas and evidently were the cause of all the trouble and of the death of the animal.—(*Recueil de l'Hygie. et Médec. Vétér. Milit.*)

LYMPHO-SARCOMA IN THE DOG [*Mr. A. Borrel*].—A tumor spontaneously inoculable by coit is frequently found on the penis or in the vagina of male or female dogs. The author has had the opportunity to study one of these in its developing stage, after removal from the vulva of a slut. In the tissues surrounding the neoplasm, in the subcutaneous glands and in the deep epithelial ramifications, starting from the cutaneous surface, were a great number of parasites, probably larvæ of acari. The larvæ may pass into the subepithelial tissues and promote phagocytal reactions, forming nodules which by degrees take the typical aspect of the nodules of the tumor. The action of these larvæ as agents of inoculation would explain very well the contagion of the neoplasms by the natural channels, especially in coitus and also their presence in the vagina and on the penis. Further observations will confirm or upset this theory.—(*Recueil de Méd. Vét.*)

A NEEDLE IS EXTRACTED FROM AN ABSCESS IN THE STERNO-ABDOMINAL REGION OF A COW [*Mr. Benjamin*].—A boy took a piece of one rib of a parasol, 12 centimeters long, sharpened it on one end, made a hook at the other and attached a piece of cord to it. He intended to hook on this apparatus the fishes that he hoped to catch at a fishing excursion. He had good luck and returned home with a mess of fish, which he was to fry and enjoy. Unfortunately, he laid the string on the ground and while he prepared his cooking apparatus a cat passed by, took hold of the fish and string and ran away to a hayloft, where it had a fine treat. Some time after, one of the cows of the farm seemed to walk with difficulty, groaned when she was about to lay down; a swelling made its appearance under the sternum. This got very large. Poultices were applied and after

a few days fluctuation was present. A large abscess was opened and in its center the exploring hand felt a sharp-pointed structure. As it was impossible to extract it, the cow was cast, the incision of the abscess enlarged and finally the piece of rib of the parasol was extracted. Recovery followed.—(*Bullet. de la Soc. Cent. de Méde. Vétér.*)

TEARING OF THE POSTERIOR VENA CAVA IN A HORSE [*M. M. Brocheriou and Foucault*].—An English thoroughbred, ten years old, while exercised to jump, misses his effort, makes a somersault and falls. He gets up, shows great lameness in one hind leg, walks a few steps and drops dead, the cause being a supposed fracture of the vertebral column. Post-mortem: The abdominal cavity contained about fifteen litres of dark blood. The intestines, liver and spleen and kidneys were normal but bloodless. In the sublumbar region, on its inferior border, the vena cava had a linear tear, *ante-mortem,* which measured 15 centimeters in length. There were no vermiform aneurisms, but the lymphatic mesenteric glands seemed hypertrophied. In the thoracic cavity there was nothing abnormal. In the pericardium there was a little reddish liquid. The cardiac muscle was hypertrophied and weighed 4 kilog. 730 grammes. The hypertrophy was more marked on the left ventricle. There were very interesting lesions on the right auricle. Its walls were the seat of nuclei of bony infiltration, six or seven in number, of various sizes, the largest as big as a hazelnut. The coronary blood vessels were normal.—(*Bullet. de la Soc. Cent. de Méde. Vétér.*)

SPONTANEOUS RECOVERY OF A VENTRAL HERNIA IN A PIG BY MORTIFICATION AND ESCAPE OF THE CONTENTS OF THE HERNIAL SAC [*Mr. C. Dubois*].—A six-months-old pig has a bad fall and as a consequence a tumor develops on the left flank. In a few days this takes enormous dimensions. It is a regularly rounded swelling, as big as a child's head, and situated on the lower part of the left abdominal wall. It has an elastic consistency, is a little painful and reducible. Vermicular motions and glouglou sound are detected in it. Although the hernial ring is not detected, there is no doubt that the case is one of ventral hernia. An operation is advised and the consent of the owner waited for before interfering. While this is not sent, a new condition is observed. The appetite diminishes and soon stops. The pig is dull, lays concealed in its straw, the abdomen becomes painful, the hernia is twice as large, the skin is showing marks of sloughing here and there and soon fistulæ exist in

several places, from which escape dark fluid with very offensive odor and mixed with solid matters. A free incision is made. A large hernial sac is opened, it contains a magma of fæces and necrotic tissues having a very offensive odor and some having yet the characteristic form of a piece of intestine. After this is all removed and disinfected a small opening is detected at the bottom of the sac; it is the hernial ring, which opens into the intestine and forms an artificial anus, from which fæcal matters come out. After that operation the pig begins to improve. After a week the artificial anus is reduced and finally closes entirely, and in two weeks the animal is defecating naturally and puts on fat very rapidly.—(*Revue Vétérinaire.*)

Acute Sarcomatous Infection in a Dog [*Prof. Cadéac*].—A slut, aged eighteen months, has first under the throat an adenitis, characterized by a round swelling, movable, painful and rapidly enlarging. In less than fifteen days, this first neoplastic center forms a double chain extending on each side of the neck, shoulders, thorax and abdomen. It occupies all the lymphatic network, it spreads everywhere, in all directions. The nodular development is so great that it resembles an eruptive disease; the subcutaneous, perimuscular, intermuscular tissues and the thickness of the skin are infiltrated with miliary granulations, pimples and small tumors. The whole skin from the tip of the nose to the extremities of the paws is literally raised by these growths. Cancerous cachexia progresses with the neoplastic infiltration. Circulation and respiration remain normal. The animal died one month after the first appearance of the disease. Postmortem reveals growths developed in the skin, subcutaneous tissue, all the muscles and in all regions of the body. They had gathered together and formed masses around the tendons, the extremities and specially around the hocks. They varied in size and all were whitish or rosy on their surface and milky white on section. They all had a lardaceous consistency without softening in the center. The internal organs were also affected. The liver, kidneys, spleen and peritoneum were equally full of them. The lungs were about free. All the lymphatic glands are more or less affected. Their nature was embrionary *lympho-sarcomatous,* a form of tumor which becomes generalized most easily and frequently in dogs.—(*Journ. de Zoötechn.*)

Urinary Lithiasis in a Sheep—Ischial Urethrotomy [*Mr. Freger*].—A ram stops eating and has colic. He is uneasy and shows he is in great pain. Rumination is stopped and all

food is refused. He lies on the belly, suddenly rises and makes vain efforts to micturate. On a level with the ischial curvature of the penis there is a painful spot. To ascertain if the ram micturates or not, a cloth is secured under his abdomen. This remains dry. Evidently the ram does not pass any water. As on account of the disposition of the urethra, catheterism is not possible, ischial urethrotomy is performed. The urethra is exposed and opened, but when a catheter is to be introduced the valve that exists in the canal prevents it. As there is much hæmorrhage which demands plugging, the animal is left alone. He does well, passes water through the ischial fistula and soon puts on flesh. But the peculiar escape of the urine gives rise to excoriations on the skin. Finally, the operation having given temporary relief, the fistula remained running, and the animal lost his condition. To the economical point of view, the operation is of no interest in sheep.—(*Journ. de Zoötechn.*)

Of Interest to Ophthalmologists.—*Paris,* July 31.—Dr. Fortin has reported to the Academy of Science a new contrivance which he believes is to be of great service in eye diagnosis. The physicians found that the light from a mercury vapor lamp, passing through two sheets of blue glass and reflected into the eye by a large lens, reveals the internal condition infinitely better than the ordinary white light. By placing a screen with a pinhole between the light and the eye a magnified image of the vessels at the back of the retina, which have hitherto been almost invisible, has been obtained.

Horse Electrocuted Through Mouthing an Electric Bulb.—The following item from the Denver *Republican* of Aug. 21, has been investigated by Dr. Mark White, of that city, and verified: Reaching up and grasping the setting for an incandescent bulb in his mouth yesterday, one of the handsome dapple-gray transfer horses belonging to the Harrington Plumber Mercantile Company was electrocuted. Death resulted only a few minutes after the accident occurred. S. G. McHenry, who had charge of the team, endeavored to remove the electric fixture from the animal's mouth and himself received a shock that knocked him violently against the side of the stall. The wire from which the shock was received had not been used for some time. On investigation after the accident it was found that nearly 200 volts of electricity passed through the horse's body. The animal was valued at $300.

ARMY VETERINARY DEPARTMENT.

CONFERENCE OF ARMY VETERINARIANS AT KANSAS CITY.

FORT RILEY, KANSAS, July 22, 1907.

Editors American Veterinary Review:

DEAR SIRS:—I wish to appeal to the many Army Veterinarians who are within easy distance of Kansas City as to the necessity of their attending the American Veterinary Medical Association meeting that we may consult together and with the legislative body of the above-named organization. We have got to start anew and endeavor to get a new bill before Congress at the next session.

Judging from the very interesting letter printed in the July REVIEW, we have a staunch supporter of our cause in Chairman Hull, of the House Committee, and we are sure of the same support from Senator Warren, of the Senate Committee. With such men back of us, it seems possible for us to obtain favorable legislation.

The Association will be well represented by the veterinarians from Riley, there being at present four at this station, and I am sure that those from Leavenworth will be in attendance; and there is no reason why there should not be more Army Veterinarians in attendance than ever before.

At the last session of Congress the appropriation bill was changed so that it seemed that veterinarians would receive the 10% foreign service pay, but it now appears that the Paymaster-General is to disallow it on the technicality of the wording of the new measure. The words "commissioned officers" were stricken out, but the bill contained the clause, "as provided by act approved June 30, 1902," and in that act foreign service pay is limited to commissioned officers.

The only way out of all these irregularities is that the veterinarian be a commissioned officer, and until such be the case we will be subjected to various injustices which have from time to time been mentioned in the "Army Veterinary Department" of the REVIEW.

Let all who possibly can be present at the meeting in Kansas City, and see if we cannot get the ball started rolling with increased vigor. CHAS. H. JEWELL, *Vet. A. C.*

THE ADOPTION OF THE "MALLEIN TREATMENT" BY THE ARMY.

The veterinary profession at large may look upon the Army Veterinarians as being a number of years behind the profession since the Army has taken up the "mallein treatment" for glanders, and for this reason I wish to state for the benefit of the Army Veterinarians as a whole that this was not done through their action, but it came about through an order issued from the War Department, and was most likely the result of the letter transmitted to the Chief of Staff by Dr. Richard B. Corcoran. This letter was published in the REVIEW, and no doubt was widely read and commented on, yet no comments were recorded in the REVIEW. Horses may cease to react to mallein, but that is no proof that they are cured of glanders. I think the report by Dr. Gage is very good evidence that such animals are a constant source of danger. The question of the disposal of reacting animals which are to all appearances sound is one of the most perplexing problems which we have to deal with. The only method would be to exterminate the disease by a crusade against it throughout the United States similar to the one against contagious pleuro-pneumonia of cattle.

CHAS. H. JEWELL.

* * *

ARMY PERSONALS.

THE QUARTERMASTER-GENERAL has allowed an appropriation of $3,000 to build a veterinary bacteriological laboratory in connection with the training school at Fort Riley.

DR. ALEXANDER PLUMMER, 4th Cavalry, who has been on a two months' leave, returned to Fort Riley for duty on Aug. 3d. He spent his vacation in the mountains of California and Colorado.

DR. GEORGE HANVEY, 6th Field Artillery, was by his own request transferred to the 6th Cavalry and joined his regiment at Fort Meade, S.D. The 6th Cavalry will leave for the Philippines in September.

DR. EUGENE V. DOWD, instructor in horse-shoeing at the training school at Fort Riley, has resigned, and the place is temporarily filled by Mr. Frank Churchill, pending an appointment by the Civil Service Commission. An examination was held July 10th throughout the United States for applicants wishing the position.

CORRESPONDENCE.

MINNESOTA GOES SOME, TOO.

ST. ANTHONY PARK, MINN., Aug. 16, 1907.

Editors American Veterinary Review:

DEAR SIRS:—In the July REVIEW the editor paid a high compliment and a well-deserved one to Pennsylvania veterinarians for their splendid success with their last Legislature. Pennsylvania has done great things and our Minnesota hats are off to Pennsylvania's splendid organization, and the good men who make up that organization.

Minnesota has no veterinary college. Her veterinarians believe in fewer colleges and better ones, so we can not make any comparison on that score.

We, too, are proud of our financial showing. Minnesota can duplicate Pennsylvania's $135,000 for live stock sanitary work, our last Legislature having appropriated a total of $95,000 for work with glanders and tuberculosis. Our sanitary board has another $38,000 appropriation for control work, and the Legislature gave also a special $2,000 for work with swamp fever, making a total $135,000.

Our veterinarians and stock men have secured from each of the last two congresses $5,000 as a special item for investigation work with swamp fever.

The veterinary division of the experiment station has available, for 1907-8, an appropriation of $9,750 which will surely be increased somewhat for the fiscal year of 1908-9, not counting the increase, however, and multiplying that available this year by 2, this gives $19,500.

Our last Legislature also passed a strong stallion registration bill which provides for veterinary examination and licensing of all stallions doing public service. This brings an annual fund of approximately $5,000 or for the biennial period the neat sum of $10,000, making a total of $174,500 for veterinary, sanitary, control, and investigational work.

We believe that Minnesota has a larger pay-roll for sanitary board work, and does more direct field work than any other State in the Union. Our board employs one secretary and executive officer (veterinarian), four field veterinarians, and a veter-

inary bacteriologist, all on full time, and an assistant secretary. The total pay-roll for these being $11,520, not counting the rise of local veterinarians.

Minnesota claims to be using more tuberculin and more mallein by a very wide margin than any other State, and we would be very glad to compare our police control work with tuberculosis, glanders, and hog cholera with any other State board's work.

The last Government report, B. A. I. 1905, shows that Minnesota is by a comfortable margin the largest user of Bureau tuberculin. Only two other States, Massachusetts and Vermont, approach the Minnesota figure, Minnesota having received, approximately, ¼ of the total output of Bureau tuberculin in a list of 33 States. The same report shows for mallein, that we are using over ⅓ of the total output and four times as much as any other State in a list of 20 States, barring the District of Columbia; and we have no more glanders than our neighbors, but rather less. Pennsylvania does not appear in either list and the reasonable inference is that the live stock sanitary board of that State is using tuberculin and mallein made at home. As figures for the amount of these agents used in that State during the year quoted are not at hand, I may be treading on uncertain ground so far as Pennsylvania is concerned when boasting that Minnesota uses more mallein and tuberculin than any other State, but there can be no doubt of this in regard to mallein and we shall claim it for tuberculin until the statement is disproven.

We secured from the last Legislature just what we asked for in the way of a revised Practice Act, and at this writing do not know where we would change a single phrase if we could. In other words, we think that our Minnesota Practice Act is just about ideal.

The Minnesota State Medical Association, meeting this month, will consider a recommendation by its President for the establishment of a section on Veterinary Medicine. So far as the writer knows, this is the first State medical association in America to give our profession such recognition.

Minnesota veterinarians expect to have representatives seated this winter in the voting membership of the State Agricultural Society, and thus have a voice in actual management of the largest State or provincial fair in America. If there is a reader of the REVIEW who doubts this statement let him come to St. Paul during the first week in September. The total gate re-

ceipts last year were twice as large as those for any other state fair, and during the one week of its continuance it slightly exceeded the total gate receipts of the famous Toronto Provincial Fair for two weeks. Our hats are off to Pennsylvania, but unless the Pennsylvania boys will be content with second place in the future they had better plan to "go some," and keep everlastingly at it.

M. H. REYNOLDS.

PROF. W. OWEN WILLIAMS AND SURRA.

BATON ROUGE, LA., Aug. 20, 1907.

Editors American Veterinary Review:

DEAR SIRS:—In reading over Dr. C. Nockolds' interesting and instructive "Some Notes on the 'Tryps'," I was rather surprised to see the statement attributed to Prof. W. Owen Williams, viz., that he (Prof. Williams) had, while employed as chief inspecting veterinary officer at the British remount depot near New Orleans, Louisiana, during the Boer war, seen lots of surra animals. Surely Professor Williams must have been trying to perpetrate a joke on us on this side of "the pond" when he made such a statement as that, as he must, after a sojourn of some six months in Louisiana at the time referred to, have known that such was not the case. Your correspondent has been connected with the veterinary division of the Louisiana State University and Experiment Stations for the past eighteen years, and has never seen, heard of, nor had it even suggested, a case of surra in the State of Louisiana; and we believe, that, had a case ever occurred in this section, it is more than probable it would have been brought to our notice. Besides, during Professor Williams' stay in New Orleans, we had the pleasure of calling upon him at headquarters on one or more occasions, and not only so, but traveled with him, by sea, from New Orleans to Liverpool, in 1900, and was his close companion, as he was confined to his stateroom, almost the entire voyage, with an acute attack of rheumatic fever, but, although we discussed various topics, interesting to both of us from a professional standpoint, he never once hinted at having seen any "surra animals." All this leads us to think that Williams must have been trying to "scare" us a bit, without ever expecting that his statement would be reproduced in "cold type."

No, we have our share of troubles in Louisiana, but we will have to refute the Professor's statement with regard to surra. Nor do we believe, as is the opinion of Dr. Nockolds,

that the disease exists, or ever has existed, in this country—except in the case of the zebu cattle that were imported from India, but where the disease was stamped out in quarantine by the representatives of the National Bureau of Animal Industry.

Incidentally, I might add, that "the eminent author of several of our most treasured veterinary works," was not Prof. W. Owen Williams, but his late distinguished father, Professor William Williams, of Edinburgh, who wrote the "Principles and Practice of Veterinary Medicine," and the "Principles and Practice of Veterinary Surgery." At least, I am inclined to think it must be the senior member of the family whom Dr. Nockold had reference to. And we feel sure that Prof. W. Owen Williams will not at all object to our making this correction in favor of his distinguished sire.

Very sincerely yours,

W. H. DALRYMPLE, M.R.C.V.S.

CREDIT WHERE CREDIT IS DUE.

OTTAWA, CANADA, Aug. 16, 1907.

Editors American Veterinary Review:

DEAR SIRS:—In issue of the Farmers' Advocate, Winnipeg, of June 12th, the statement was made in the article on page 884 dealing with Maladie du coit in Alberta, under the heading of "Health of Animals Branch Scores Again," that "several United States veterinarians and pathologists visited the quarantine station several miles out of Lethbridge to confirm or dispute the diagnosis. So far as we know the diagnosis was not confirmed by the gentlemen." From information to hand, we were in error, as Dr. E. T. Davison, Helena, Mont., confirmed the diagnosis made by the Canadian inspectors, as may be seen by referring to the report of the Veterinary Director-General for 1904, pages 64, 67 and 69.

Very truly,

ARTHUR G. HOPKINS.

ABOUT two years ago Dr. J. F. Winchester, of Lawrence, Mass., sent in the photo and a short account of the remarkable fecundity of a cow at the Hill Farm, near Lawrence, in which there were *seven* calves born at one parturition. This remarkable cow has again been delivered of *five* calves at one accouchement.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The twenty-third annual meeting of the above association was held in the Assembly Room of the Columbian Club, Jersey City, Jan. 10, 1907, with Dr. T. Earle Budd, President, in the chair, and the following members in attendance:—Axford, Baldwin, Budd, Bushong, Butler, Churchill, Conover, Downs, Ferguson, Glennon, Gray, Hendren, Hogan, Holdenby, Hopper (A. G.), Hopper (J. B.), King, Laddey, Lindsay, Little, Loblein, Lockwood, Lowe (J. Payne), Lowe (Wm. Herbert), Mathews (E.), Mathews (John P.), Mecray, Meiners, Mitchell, Moody, Mosedale (James), McDonough, McIntosh, Paulin, Peterson, Pope, Rogers (Carroll T.), Rogers (Thos. B.), Runge, Sellers, Smith (Thos. E.), Stage, Treadwell, Turner, Tuttle, Vander Roest Vliet. Dr. Rufus R. Ramsay, of Jersey City, and Dr. Geo. W. Smith, of Hoboken, were also present. Visitors:—Dr. A. Clarke Hunt, State Board of Health, Trenton; Dr. Richard P. Lyman, Secretary American Veterinary Medical Association, Hartford, Conn.; Dr. C. J. Marshall, Philadelphia, Pa.; Dr. Roscoe R. Bell, Editor AMERICAN VETERINARY REVIEW, Brooklyn, N. Y.; Dr. W. Reid Blair, N. Y. Zoölogical Park, The Bronx, N. Y. City; Dr. Robert W. Ellis and Dr. H. D. Gill, New York-American Veterinary College; Dr. E. B. Ackerman, Veterinarian Brooklyn Board of Health; Drs. Kingston, Ferster, Jr., Phalen and T. F. Krey, of New York.

The minutes of the semi-annual meeting held July 12-13, 1906, at Asbury Park, were read and approved.

A cordial address of welcome was delivered by Dr. T. E. Smith, of Jersey City, to whom the Association was indebted for the use of the Columbian Club's handsome and well-adapted building. Appropriate response on behalf of the Association was made in a few well-chosen words by Dr. T. B. Rogers, of Woodbury, N. J. On motion of Dr. Paulin, Dr. Smith and his committee was given an unanimous vote of thanks for all they had done for the success of the meeting.

Dr. T. Earle Budd then delivered the presidential address in an able and eloquent manner.

The following veterinarians were proposed for membership, their applications referred to the Executive Committee, and duly elected to membership:—Otis H. Downs, D.V.S., Kansas City Veterinary College, 1904, Englewood, N. J., licensed by the State Board of Veterinary Medical Examiners of New Jersey, 1905; Henry W. Turner, V.M.D., University of Pennsylvania, 1893, Lambertville, N. J.; J. P. Bushong, V.M.D., University of Pennsylvania, 1906, Newark, N. J., licensed by the State Board of Veterinary Medical Examiners of New Jersey, 1906.

Announcement was made of the death of former President Dr. J. W. Hawk, of Newark. The President appointed Drs. Lowe, Runge and Baldwin a committee to draft suitable resolutions.

PAPERS.

"The Use of Slings in Veterinary Practice," by Dr. Geo. W. Pope, Athenia, N. J.

"Horsemanship," by Dr. J. B. Hopper, Ridgewood, N. J.

"Short Extracts from Every-Day Practice," by Dr. Otis H. Downs, Englewood, N. J.

"Meat Inspection," by Dr. S. G. Hendren, Arlington, N. J.

"The Work of the State Board of Veterinary Medical Examiners," by Dr. Wm. Herbert Lowe, Paterson, N. J.

Dr. A. Clark Hunt, of the State Board of Health, was introduced and made an interesting address.

President Budd's term as President being about to end, he was the recipient of an elegant cut-glass punch-bowl, the gift of his colleagues who presented it to him as a token of their personal regard for him and in recognition of the dignified manner in which he had presided over their deliberations. Dr. Budd was almost overcome with emotion, and for once in his life was unable to express himself as he would like to have done.

ELECTION OF OFFICERS.

The following officers were elected and installed:—

President—Dr. E. L. Loblein, New Brunswick.

First Vice-President—Dr. J. B. Hopper, Ridgewood.

Second Vice-President—Dr. T. B. Rogers, Woodbury.

Treasurer—Dr. T. E. Smith, Jersey City.

Secretary—Dr. Wm. Herbert Lowe, Paterson.

Asbury Park was chosen as the place for the semi-annual meeting July, 1907. On motion, meeting adjourned.

The semi-annual meeting of this Association was held at the Hotel Marlborough, Asbury Park, N. J., July 11-12, 1907, with Dr. E. L. Loblein, of New Brunswick, President, in the chair, and the following in attendance:—

Members:—Baldwin, Brown, Budd, Carter, Christy, Churchill, Conover, Dickson, Gall, Glennon, Harker, Height, Hopper (John B.), Kehoe, Lindsay, Loblein, Lockwood, Lowe (J. Payne), Lowe (Wm. Herbert), Magill, McDonough, McIntosh, Moody, Morehouse, Mosedale (James), Rogers (Carroll T), Rogers (Thos. B.), Rowe, Jr., Smith (Thos. E.), Thompson, Vliet.

Ladies:—The following ladies were guests of the Association:—Mrs. R. W. Carter, Jobstown, N. J.; Mrs. Geo. F. Harker, Trenton, N. J.; Mrs. V. B. Height, Asbury Park, N. J.; Mrs. John B. Hopper, Ridgewood, N. J.; Mrs. Wm. Herbert Lowe, Paterson, N. J.; Misses Kittie and May McDonough and Miss Gallagher, Montclair, N. J.; Mrs. A. H. McIntosh, Summit, N. J.; Mrs. A. A. Moody, Mount Holly, N. J.; Mrs. Geo. H. Berns and daughter, Brooklyn, N. Y.; Mrs. Roscoe R. Bell and children, Brooklyn, N. Y.; Mrs. W. Reid Blair, N. Y. City; Mrs. J. E. Ryder and daughter, N. Y. City; Mrs. Robert W. Ellis, N. Y. City; Mrs. H. Nagle, Undercliffe, N. J.; Mrs. Haversick, N. Y. City.

Other Visitors:—Hon. Franklin Dye, Secretary State Board of Agriculture, Trenton, N. J.; Jos. B. Ward, M.D., member State Tuberculosis Commission, Newark, N. J.; Mr. Sears, a prominent dairyman; Dr. Olcott; W. Reid Blair, D.V.S., Veterinarian N. Y. Zoölogical Park, Bronx; Mr. E. R. Sanborn, Commissioner of the N. Y. Zoölogical Park, Bronx; Roscoe R. Bell, D.V.S., Editor AMERICAN VETERINARY REVIEW, Brooklyn, N.Y.; A. M. Bell, M.D., N. Y. City; Geo. H. Berns, D.V.S., Brooklyn, N. Y.; E. B. Ackerman, D.V.S., Veterinarian Brooklyn Board of Health; C. E. Clayton, D. V. S., N. Y. City; Robert W. Ellis, D.V.S., New York-American Veterinary College, N. Y. City; Captain Wm. F. Kirchner, Asbury Park, N. J.; Mr. Haversick, N. Y. City; L. J. Belloff, D.V.S., New Brunswick, N. J.; T. F. Krey, D.V.S., Secretary New York-American Veterinary College Alumni Association, N. Y. City; J. E. Ryder, D.V.S., New York-American Veterinary College, N. Y. City.

The minutes of the twenty-third annual meeting, held at the Columbian Club, Jersey City, Jan. 10, 1907, were read and approved.

President Loblein presented an able address, in which he referred to the many and diversified public questions demanding attention of the veterinarian at the present time in our state. He took occasion to criticize state officials who were attempting to deal with problems that belong to the domain of veterinary science without possessing the scientific qualifications of the trained veterinarian. President Loblein pointed out the growing necessity of specialism in the veterinary profession whose scope is so broad as to be beyond the possibilities of the general practitioner. He advocated the institution of special courses in our educational institutions with a view of better fitting men for special work. Legislation had done some good. Education and special fitness had done more. The President said that the work of the American Veterinary Medical Association was deserving of the highest commendation and that the general improvement in the curriculum of the various veterinary colleges in the United States and Canada, and the short life of institutions of the mushroom order was largely due to its censorship. Dr. Loblein also stated that the work of the State Board of Veterinary Medical Examiners is worthy of the profession's highest commendation. He was gratified with the character and fairness of the examinations as conducted by the State Board and with the success it has had in ridding the state of illegal practitioners.

NEW MEMBERS.

The following veterinarians were proposed for membership. Their applications were referred to the Board of Censors who reported favorably and they were duly elected:—Chas. S. Thompson, D.V.S., New York-American Veterinary College (N. Y. University), 1904, Rahway, N. J., licensed by the State Board of Veterinary Medical Examiners of New Jersey, 1905; Robert W. Carter, V.S., Ontario Veterinary College, 1883, Jobstown, N. J., registered under the laws of New Jersey, 1889; Walter G. Morehouse, D.V.M., New York State Veterinary College (Cornell University), 1907, licensed by the State Board of Veterinary Medical Examiners of New Jersey, 1907.

Secretary Lowe presented the name of Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C., for honorary membership. The

application was signed by three members of the Association as required by the by-laws. The Executive Committee reported favorably and Dr. Melvin was elected by an unanimous vote.

REPORT OF COMMITTEE ON LEGISLATION.

The Legislation Committee reported the arrest, indictment, and conviction of Dr. Fred. M. Eason, Englewood, N. J., who claimed to be a graduate of the Royal College of Veterinary Surgeons, London, England, for practicing veterinary medicine in New Jersey without a license from the State Board of Veterinary Medical Examiners as required by the laws of New Jersey. The Court imposed a fine of $100 upon Dr. Eason for disregarding the laws of New Jersey.

George Locke, V.S., Flemington, N. J., who has been twice indicted by the Grand Jury for practicing veterinary medicine illegally and who escaped the Sheriff of Hunterdon County, is now behind the bars.

Asa Thomas, V.S., South Amboy, N. J., a graduate of the correspondence school at London, Ontario, persisted in practicing in open violation of the laws of New Jersey, has been arrested and is held for the action of the grand jury of Middlesex County.

The Committee also reported the killing of a bill that had been introduced in the last Legislature to allow a non-qualified man to register.

The Committee reported the preparation of a bill consolidating the veterinary service of the state and placing it under veterinary direction; and that it was the intention of the Committee to have the bill in shape for final approval and legislative action at the coming session of the Legislature.

SPECIAL COMMITTEE.

The work of the State Tuberculosis Commission as conducted under the existing law appeared to be unsatisfactory to members of the Association and Veterinarian Edward Rowe, Jr., Health Officer of the City of Summit, N. J., made the following motion which was adopted:—"That the President appoint a committee of three to confer with the Tuberculosis Commission and make such recommendations and suggestions as to them may appear expedient to better and improve the service now being rendered by said commission."

RESIGNATION CHAIRMAN COMMITTEE ON LEGISLATION.

At the request of the Secretary, the President read the resignation of Dr. Wm. Herbert Lowe as chairman of the Committee on Legislation. The Association refused to entertain the resignation and by a unanimous vote requested him to continue to serve the Association in his present position as chairman of said committee.

COMMITTEE ON OBITUARY RESOLUTIONS.

The Secretary reported the death of Dr. R. O. Hasbrouck, of Passaic, N. J., which occurred Jan. 14, 1907, and that a suitable floral piece had been sent to his funeral. The President appointed Drs. McDonough, J. Payne Lowe and Lockwood a committee to draft obituary resolutions.

STANDING COMMITTEES, 1907.

Executive—Drs. T. Earle Budd, *chairman;* J. Payne Lowe, Glennon, Conover, T. B. Rogers.

Legislation—Drs. Wm. Herbert Lowe, *chairman;* Budd, T. B. Rogers, T. E. Smith, Vander Roest, Harker, Gray.

Public Health—Drs. Werner Runge, *chairman;* Ripley, Tuttle, Hendren, Voorhees.

Animal Industry—Drs. Geo. W. Pope, *chairman;* English, Mecray, Horner, James Mosedale.

Finance—Drs. John B. Hopper, *chairman;* Baldwin, Paulin.

Publication—Drs. Geo. B. Vliet, *chairman;* McDonough, Downs.

PAPERS AND DISCUSSIONS.

Papers were read and discussed as follows:—

"The Veterinarian and His Patients in Literature," by Dr. Thos. B. Rogers, Woodbury, N. J.

"The Practical Workings of the Agglutination Test for Glanders," by Dr. Geo. H. Berns, Brooklyn, N. Y.

"Clinical Report," by Dr. Edward Rowe, Jr., Summit, N. J.

"Agricultural and Public Health Problems Confronting the Veterinary Profession," by Dr. Wm. Herbert Lowe, Paterson, N. J.

"The Work of the State Tuberculosis Commission and Present Conditions," by Hon. Franklin Dye, Trenton, N. J.

"The Milk Question from the Milkmen's Standpoint," by Mr. Sears.

WM. HERBERT LOWE, *Secretary.*

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

This Association convened for its twenty-fourth annual session, at the Great Southern Hotel, Columbus, O., on Tuesday, Jan. 22, 1907.

Meeting called to order at 1.45 P. M., with President W. A. Axby in the chair.

Dr. Axby introduced Mayor Badger, who gave us a hearty and welcome invitation to the city. Dr. Louis P. Cook, replying to the address of welcome, took occasion to remind the veterinarians present that we had a State law against illegal practitioners, and which no effort was being made to enforce.

THE ATTENDANCE.

The roll-call showed the following members present: W. A. Axby, Harrison; J. H. Blattenburg, Lima; H. W. Brown, Columbus; O. V. Brumley, Columbus; S. E. Bretz, Nevada; T. B. Cotton, Mt. Vernon; L. W. Carl, Columbus; G. W. Cliffe, Upper Sandusky; L. P. Cook, Cincinnati; W. E. Clemons, Granville; W. R. Clark, Wauseon; E. H. Callender, Zanesville; J. W. Choate, Columbus; Norton Dock, Columbus; F. H. Dettman, Troy; J. D. Fair, Berlin; Harry Fulstow, Norwalk; C. B. Frederick, Canton; J. L. Faragher, Lorain; J. E. Foster, Coshocton; W. H. Gribble, Washington C.H.; A. D. Gemmill, Celina; T. B. Hillock, Columbus; N. W. Hillock, Columbus; W. R. Howe, Dayton; R. C. Hill, West Alexandria; E. O. Hess, Elyria; E. E. Inskeep, Urbana; J. E. Johnson, Piqua; M. J. Jones, Jr., Blanchester; G. W. Kinsey, Wheeling, W. Va.; W. A. Labron, Xenia; C. E. Leish, Columbus; C. E. Langdon, Sabina; S. D. Myers, Wilmington; J. A. Meagher, Glendale; Fred Miller, Ft. Recovery; H. M. Manley, Dayton; E. L. Metzger, Louisville; L. H. Maynard, Columbus; H. W. McMillen, Brookville; M. C. McClain, Jeromesville; J. V. Newton, Toledo; L. Smalley, Loudenville; Walter Shaw, Dayton; E. H. Shepard, Cleveland; F. F. Sheets, Van Wert; Sept Sisson, Columbus; L. A. Severcool, Elyria; W. H. Turner, N. Amherst; D. H. Udall, Columbus; D. S. White, Columbus; W. B. Washburn, Tiffin; I. A. Wynn, Kenton; W. C. Webb, Akron; H. L. Williams, Newark; W. E. A. Wyman, Covington, Ky.; W. E. Wright, Pittsburg, Pa. Quite a goodly number of visitors, among them Dr. D. A. Piatt, Lexington, Ky.; Dr. L. Meyer and Dr. R. C. Swetman, Covington, Ky.; Dr. H. E. Mevers, Carey, O.; Dr. J. A. Planz, Akron, O.; Dr. G. M. Rogers, Forest, O.; Dr. M. B. Lamb, Columbus, O.;

Dr. W. Sanderson, Sidney, O.; Dr. H. T. Moss, Germantown, O.; Dr. Z. W. Seibert, Crestline, O.; Dr. Geo. W. Rogers, Foust, O.; Dr. C. W. Secoy, Athens, O.; Dr. E. E. Bell, Nelsonville, O. Others we failed to obtain the names of.

Minutes of the previous meeting read and approved.

President W. A. Axby followed with an excellent annual address.

The Secretary called attention to the fact that since our last meeting death had taken from us a member, Dr. Constant Lake. Dr. Hillock reminded the Association that the profession had also lost another and well-known member, Dr. H. J. Detmers. The Chair appointed a committee to draft suitable resolutions and to report later.

The Treasurer reported a balance in the Treasury at the opening of this session of $225.

Report of Committee on Veterinary Diseases was rendered verbally by its Chairman, Dr. E. H. Shepard.

Report of Committee on Veterinary Progress was rendered verbally by its Chairman, Dr. J. V. Newton.

Committee on Clinics and Arrangements stated that a banquet would be held at the Great Southern Hotel this evening at 8.30 P. M. Clinics at the Veterinary Hospital at the Ohio State University to-morrow morning.

ELECTION OF OFFICERS.

Nomination and Election of Officers followed. There being but one nomination for each respective office, the rules were suspended and each in turn declared elected:

President—Dr. C. B. Frederick, Canton.

Vice-President—Dr. Harry Fulstow, Norwalk.

Treasurer—Dr. T. B. Hillock, Columbus.

Secretary—Dr. Wm. H. Gribble, Washington C. H.

Censor—Dr. G. W. Cliffe, Upper Sandusky.

The Censors now are—Drs. Brumley, Fair, Cliffe.

A discussion on illegal practitioners followed, which threatened to take up all the time of the meeting. A motion was made, duly seconded, that a committee be appointed to ascertain what funds could be raised. An amendment was offered and when put to vote declared carried: That an assessment of $5 be levied on each member as a special fund for prosecuting illegals. A special committee, composed of Drs. D. S. White, T. B. Hillock and L. W. Carl, were appointed to confer with

an attorney as to methods, prospective expenses, etc., and report to the Association this evening. Motion was adopted that whenever a conviction was obtained that the Secretary be notified, given full particulars, and he in turn notify every member of this Association.

PAPERS AND DISCUSSIONS.

Dr. E. O. Hess now read his paper, "Effect of Medicated Stock Food on Dairy Products."* This paper brought out some very interesting medical and physiological points, which were debated at great length.

Interesting cases by Dr. F. E. Anderson, who was unable to attend, having been confined to his bed for three months with inflammatory rheumatism, as follows:

INTERESTING CASES IN PRACTICE.

"*Case I.*—A two-year-old Durham steer that was noticed to have a circumscribed swelling in the muscle about six inches below the ischiatic tuberosity, which was about the size of a hen's egg when first noticed by the farmer, and upon examination was apparently loose in the muscle and hard, without sign of any injury, not even a hair was missing. Steer had been on grass and in fine condition. I was called to see him about three weeks after the enlargement was first noticed, and at that time the tumor was about the size of a man's head, the whole quarter and leg swollen to an enormous size; tumor entirely devoid of sensation, which I discovered by cutting through it to a depth of about eight inches, the walls of which were very hard, apparently composed of fibrous tissue with no flow of blood to speak of and no center or nucleus for a starting point of the growth. Animal still eating well, but had no use of the affected leg. Lost appetite in four days after seeing him and began to swell under abdomen, which extended to foreleg, when he was found dead in the barn. Please tell me what the trouble was. No elevation of pulse nor rise in temperature. The day I examined him, the urinary organs and bowels were in good condition.

"*Case II.*—I also held a post-mortem on a black gelding that was in good condition at time of death, which showed colicy pains for ten hours previous to death, and found his liver would not go in a bushel basket and weighed 105 pounds and very solid, with a spleen that was three feet long and weighed 58

*Published in the July REVIEW.

pounds, also very firm and solid. The surprising part to me was the apparent good health of the animal up to a few hours before death.

"*Case III.*—Another case was a five-months-old draft colt, in the pink of condition, fat and sleek; had never showed any signs of disease until two hours before death, when it exhibited signs of distress, which were not very severe. Post-mortem revealed one kidney entirely broken down and partially liquified. Within its capsule and the capsule of the other one, loose over about one-third of the kidney and the organic tissue in a semi-liquid condition. About one-half of an inch of the kidney was affected, while the balance of the organ was to all appearance healthy. Every other part of the animal was in perfect condition apparently. What was it?

"*Case IV.*—Chestnut gelding, 15 years old, always very fat, a great road horse, never sick or missed a feed in twelve years, while owned by the possessor at death. Had eaten his grain and hay at supper. Was found in the morning standing with a distressed look and trembling, with rapid breathing. I was called in about 9 A. M., and diagnosed the trouble as a ruptured bowel. Gave treatment to alleviate suffering, which death came to relieve about 7 P. M. Post-mortem disclosed small rupture about half an inch in diameter from small bowel in to or rather between the serous folds of the mesentery, through which had passed about one-half a bushel of the contents of the bowel, also fourteen perfect tape-worms about twelve inches long, each having a head with four suckers. Did the worms have anything to do with the rupture?"

Cases No. I., II., III. brought out in the debate a great difference of opinion. So we, with the writer, ask your readers to diagnose them for us. Give us the benefit of your views.

Dr. J. E. Foster read a short paper, "Interesting Cases to Me,"* which certainly were interesting cases for all who heard the paper.

Dr. G. W. Cliffe exhibited a specimen and read a short paper, "Carcinoma of Stomach; If Not, What?"† Dr. Cliffe was thanked by the members for going to so much trouble to exhibit to them a fresh specimen.

The Secretary read a paper, "Veterinary Correspondence Schools," including some correspondence carried on with these places of learning.

*Will be published in an early number of the REVIEW.
†Published in August REVIEW.

After the discussion that followed, a motion prevailed: That a committee of three be named, who should correspond with the Postmaster-General and ascertain if such schools could not be prohibited the use of the mails, etc. Chair appointed Drs. D. S. White, W. E. A. Wyman and W. B. Washburn.

Adjourned to meet at banquet table at Great Southern Hotel at 9.00 P. M.

After partaking of the good things, cigars were brought in. The Chair called for the report of the Special Committee on Attorney for Prosecuting Illegals. The committee reported that they had conferred with a young attorney, well connected with the legal profession and he had offered to prosecute any case brought to his attention for certain prescribed fees. After some debate, motion prevailed: That the report of the committee be accepted.

A short recess was taken in order to give the Secretary time to collect the special assessment of $5 each from those desiring to pay at once. $200 was collected.

Dr. W. E. A. Wyman now read a paper, "Veterinary Data of 1906." This paper took a wide range of subjects; was very attentively listened to, and many questions asked of the writer, all of which he did his best to answer.

An interesting and instructive paper on "Inspection of City Milk and Dairies," by Dr. L. H. Maynard next followed. From remarks which followed the reading of this paper, it was evident that many of our members lived in cities where politics dominated the quality of the milk and meat.

Dr. W. Shaw exhibited a number of photos of interesting cases, explaining each one as he passed the photos around.

Dr. Gribble exhibited three specimens, "Injury to Bones," with specimen of each, and description of each case.

Dr. Frederick exhibited quite a rare specimen of a tooth with description of the case.

The Chair appointed the following as an auditing committee: Dr. S. D. Myers, Dr. W. E. Clemons and Dr. Norton Dock. After which we adjourned to meet at the Veterinary Department of the University at 8.30 to-morrow morning.

Meeting called to order by the President at 9 A. M. Report of the Committee on Nicrology called for.

REPORT ON THE DEATH OF DR. C. LAKE.

Dr. Constant Lake was born in Wooster, Ohio, May 29, 1849. Graduated from the Ontario Veterinary College in 1888,

engaged in practice in Portsmouth, Ohio, where he died of valvular disease of the heart, on March 15, 1906. He was one of the best known residents of his adopted city, a most exemplary citizen, with many, many friends, who miss his presence. He was a most ardent lover of the horse, and in his death we feel that not only has this Association lost an honored member, but Ohio has lost a capable veterinarian.

"*Resolved,* That this Association extend to the family and friends our sincere sympathy in this their bereavement, and

"*Resolved,* That a copy of this preamble and resolutions be sent to the family, and also spread upon the minutes as part of the records.

"S. D. Myers, W. Shaw and E. H. Shepard, Committee."

ON THE DEATH OF DR. H. J. DETMERS.

"WHEREAS, Death has removed from us, on December 11, 1906, Dr. H. J. Detmers, of Columbus, Ohio, a veterinarian of great literary and scientific training and ability, an educator of international reputation and one of the pioneer scientific veterinarians of the United States, a man who ever had at heart the welfare of our profession and who labored with untiring zeal for its uplifting in Ohio, and

"WHEREAS, We feel that through his death the veterinary profession has suffered an irreparable loss, and

"WHEREAS, We not only deplore his death as a member of our profession, but as a friend and man of true and noble character;

"*Resolved,* That the Association extend his bereaved family in their affliction the sincere sympathy of its members, and be it further

"*Resolved,* That these resolutions be entered in the records of this Association and a copy sent to his family.

"Sidney D. Myers,
"Paul Fischer,
"Walter Shaw,
"E. H. Shepard,
"Committee."

REPORT OF THE AUDITING COMMITTEE.

"The committee to audit the books of the Secretary and Treasurer beg leave to report as follows:—Balance on hand end of twenty-second annual session, $360.70; receipts for twenty-

third annual session, $147.00; total, $507.70. Expenditures for twenty-third annual session, $282.70; balance on hand, $225.00. This of course does not include the receipts and expenditures of the present (twenty-fourth) annual session. We have here the expense account (including Secretary's salary) for $78.85, and recommend that the same be allowed. We find that the accounts of the Secretary and Treasurer agree, and the books are kept in a neat and businesslike manner.

"Sidney Myers,
"W. E. Clemons."

PAPERS CONTINUED.

A short paper by Dr. H. Fulstow, "Infectious Ophthalmia of Cattle and Sheep." In the debate following, it seems that nearly all animals affected get well; some few becoming blind in one eye.

The Secretary now read

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

"The undersigned give notice of proposal of the following amendments to the Constitution of the Ohio State Veterinary Medical Association: To substitute the word 'thirty' for the word 'ten' in Article V., Section 14. W. E. Clemons, J. D. Fair, S. Sisson, C. B. Frederick, W. B. Washburn, G. W. Cliffe, S. E. Bretz, M. J. Jones." This has reference to the number necessary to constitute a quorum.

"We, the undersigned members of the Ohio State Veterinary Medical Association, hereby propose that Sec. 2 of Art. V. of the Constitution be amended to read as follows: 'An annual session to be held during January of each year, at such time and place as the officers may select; unless the same shall have been agreed upon at the previous annual session.' J. A. Meagher, Louis P. Cook, T. B. Hillock, E. O. Hess, C. E. Inskeep, J. E. Johnson, J. L. Faragher, W. E. A. Wyman."

"We propose the following amendment to the By-laws: Chap. I., Art. V., Sec. 2, to read: 'The annual dues of this Association shall be two dollars ($2.00), payable in advance at the annual meeting.' J. V. Newton, T. B. Hillock." Dues are now only one dollar ($1.00) per year.

APPLICATIONS FOR MEMBERSHIP.

The following were referred to the Board of Censors and recommended by them that they be elected. There being no objections, the rules were suspended and the Secretary ordered

to cast the ballot for the members named:—John V. Planz, Arken (O. S. U., '04); Adolph G. Falk, Cheviot (Cin. V. C., '06); H. T. Moss, Germantown (Cin. V. C., '05); H. E. Myers, Carey (Ontario V. C., '05). Each new member present being called upon made a few appropriate remarks.

No further business appearing, the newly-elected officers were conducted to their seats, after which the President appointed the following committees:

Veterinary Progress—Drs. S. D. Myers, D. S. White, F. F. Sheets.

Veterinary Diseases—Drs. Paul Fisher, E. O. Hess, Harry Brown.

Clinics and Arrangements—Drs. L. W. Carl, N. W. Hillock, O. V. Brumley.

The question of a semi-annual meeting was brought up, when Dr. Axby stated he wished we could bring about a tri-state meeting. Nothing further, the Association adjourned, to attend the clinics prepared at the Veterinary Hospital.

WM. H. GRIBBLE, *Secretary*.

GEORGIA STATE VETERINARY ASSOCIATION.

In accordance with a call of the officers, the semi-annual meeting of the Georgia State Veterinary Association convened in the parlors of the Kimball House, Atlanta, Ga., on July 4th, being called to order at 3 P. M., with the President, Dr. Peter F. Bahnsen, of Americus, in the chair, and Secretary C. L. Willoughby at the desk. The following members and visitors were present: Drs. J. N. Cook, C. D. Coker, W. E. Carnes, H. G. Carnes, C. R. Jolly and H. J. Schwartz, of Atlanta; Dr. T. E. Jago, of Athens; Dr. J. E. Miller, of Gainesville; Dr. E. D. Gleason, of Macon; Dr. J. C. Schwencke, of Thomasville; Dr. Louis Friedheim, of Rock Hill, S. C.; Drs. C. A. Cary and Ward Giltner, of Auburn, Ala.; Dr. Cooper Curtice, of the B. A. I., Raleigh, N. C.; Messrs. W. Bates, of Zebulon, and H. P. Short, of Whitesburg, Ga.

The President gave his regular address to the Association as follows:—

"GENTLEMEN—We have again assembled to strengthen the bonds of professional unity which bind us inseparably together, to give and receive encouragement for the pursuit of our daily vocation, to review the progress of our profession and more

especially to deliberate over proposed veterinary legislation which it is our hope to see enacted by the General Assembly now in session.

"The founding of this Association, yet but nine months old, marks the first successful attempt to rally the veterinarians of this State in a mighty effort to secure for our ancient and honorable profession such recognition as we deserve and justice demands. I say ancient profession, because the very foundation of medical science rests upon research and experiment with lower animals.

"Especially among the nomadic tribes of India did the profession prosper, and veterinary hospitals were established as early as 1000 B. C. For a while medicine, both human and veterinary, remained in the hands of one class; but later the most successful practitioners devoted themselves exclusively to the affliction of mankind, leaving the diseases of animals to the less skillful. Nearly all ancient writers have, by their writings, admitted active interest in comparative medicine; yet, as a distinct and independent profession we owe our existence to the labors of Claude Bourgelat, whose influence and great learning prompted the French Government to open, in 1762, the first veterinary school at Lyons. The crying necessity of such an institution soon became apparent and the establishment of the schools at Alford (65), Kopenhagen (73), Dresden (74), Wien (77), Hanover (78), Budapest (86), Berlin and Munchen (90), London and Milan (91), and at Madrid in 1793 speak eloquently of the demand for its graduates.

"In America, the land of opportunity, all early ventures to establish a veterinary school were doomed to failure, the first institutions to withstand the storm of adversity being the New York College of Veterinary Surgeons, chartered in 1857, Ontario Veterinary College in 1862, and the American Veterinary College, chartered in 1875. Subsequently many recruits have joined the ranks and to-day we point with pride to Ithaca, Philadelphia, Columbus (Ohio), Chicago, Kansas City, Pullman (Washington), and others. This, in brief, is a historic sketch of veterinary rise and decay; and its regeneration among the sciences of to-day.

"Our profession is honorable, not only by reason of alleviating suffering among the domestic animals; but in our capacity as sanitarians, to which our education preëminently fits us, we are able to earn and maintain the esteem of mankind.

"Up to date the profession has, in this State, been followed unrestricted by all who cared to offer their services to an indulgent people *to the shame of our profession and the detriment of the public;* but the organization of our association marked a parting of the ways. Our aim in organizing was void of personal interest except in so far as involved the standard of our profession; restricting our membership to graduates exclusively was not, and is not, any indication of personal grievance against anyone, but simply marks the requirements essential to admission. It is our earnest desire to improve the veterinary service in Georgia and to that end we have, as previously stated, met on this occasion to deliberate over and propose, to the General Assembly now in session, such laws as prevailing conditions justify. Than you, none are better qualified to judge the necessity, nature and extent of legislation required to rescue the people from an already large army of fakirs which, by reason of veterinary laws enacted in other States, is steadily increasing.

"To rigidly exact of all who now practice documentary evidence of their qualification might, and no doubt would, result in a flood of opposition by the friends of those who have for years, perhaps with a certain degree of success, administered succor to the afflicted live stock in their community; but it seems to me the veriest tyro could not be offended by, or offer reasonable objection to, an examination looking into the qualification of anyone desiring to practice Veterinary Medicine within this State. Neither can I understand how anyone, with or without diploma, should desire to continue the pursuit of a vocation the fundamental principles of which are unknown to him.

"The Examining Board, should the Legislature look favorably upon our request, must be composed solely of veterinarians —skilled in their profession and of unshakable integrity—since it is absolute folly to suppose that anyone not so qualified could intelligently pass on the qualification of candidates seeking permission to practice. Just how, when, and by whom, those men are appointed is of little or no interest, but no one should be permitted to fill this position without the endorsement of the Georgia State Veterinary Association. This would in no way involve the association in politics, but merely act as a safeguard concerning fitness and qualification of aspirants to this office of trust and distinction.

"To-day Georgia stands almost alone without the services of a regularly employed State Veterinarian to look after the

welfare of her ever-increasing live stock interest. This position is one of great responsibility and requires the services of one well versed in infectious diseases and sanitary police; in addition, he should be a man of more than ordinary executive ability because the work before him demands plans carefully laid and vigorously executed.

"Our present Veterinary Act is worse than a sham. Of this my connection with the Department of Agriculture has thoroughly convinced me. No practitioner maintaining an infirmary, of even moderate proportion, the success, or failure, of which depends on his own supervision, can afford to abandon his private practice for the compensation offered by the State without making a personal sacrifice. This, however, is the smallest objection to the present system; of decidedly greater importance is the fact that at its best the State cases receive but half-hearted attention, since at every turn the State's emissary is acquainted with the fact that there is no law to support him in his rulings and his instructions. Men will piously require of their neighbor the observance of the golden rule, will eloquently tell you of the right that wrongs no one; but if they are victims of misfortune and your decision should call upon them to offer sacrifice for public good their demeanor is instantly changed; their cunning and evasiveness would do credit to the noble (?), lying redman of frontier fame; their subterfuges and defies baffle the skill of legal procedure.

"What we need is a sanitary law, couched in concise and unmistakable terms, providing in its text rules and regulations for investigations, quarantine and suppression of all contagious or infectious diseases among animals. Since the effectiveness of such a law must depend on those who, by virtue of their office, hold the guiding hand in these matters the necessity of executive ability in a State Veterinarian becomes at once of paramount importance.

"To reiterate, Georgia needs the following veterinary legislation:

"1. An Act to define and regulate veterinary practice in this State.

"2. An Act providing for the creation and maintenance of a Veterinary Examining Board.

"3. An Act creating the office of State Veterinarian; defining his duties, salary and term of office.

"4. The enactment of a law which, if enforced, would enable the suppression of infectious diseases of all animals within our borders.

"That, with the proper amount of push, each of these acts will pass is to me reasonably certain; in advocating it we are primarily promoting the interest of the masses.

"In his inaugural address his Honor Governor Hoke Smith advocated the separation of the State Agricultural College from the academic department of the University. Why not endeavor to establish in connection with this state institution a veterinary department whose graduates shall be second to none, if instruction and opportunity count for anything. The rapidly increasing live stock interest of our commonwealth, as well as the pressing demand for men skilled in our profession, amply justify the venture, and I see no reason why the South should not offer its rising generation ample opportunity to enter the field of comparative medicine instead of depending on the North and West to supply the demand."

Dr. J. C. Schwencke presented a paper on "Azoturia," recommending increasing peristalsis and neutralizing the poison in this trouble.

Dr. C. D. Coker, of Atlanta, read a paper on "Milk Fever," recommending the distention of the udder with air, and a hypodermic injection as stimulant.

The Association then heard an address by Dr. Cary, of Alabama, upon the subject of "Veterinary Medicine and Surgery in the South." Announcement was made that the Alabama Polytechnic Institute had just established a School of Veterinary Science, with a three-year course of study, the first of its kind in the South.

Dr. Cooper Curtice consented to speak for a short time on the work of the Bureau in eradicating Texas fever in the South. The remainder of the evening was spent in general discussions and social intercourse among the members.

On the second day, July 5th, the Association paid its respects to Hon. Hoke Smith, the new Governor of Georgia, after which a couple of hours were spent at the hospital of Dr. Jolly in clinic and demonstration work.

At 11 A. M. the meeting reassembled at the Kimball House.

Upon the recommendation of the Membership Committee, Dr. E. D. Gleason, of Macon, and Dr. H. J. Schwartz, of Atlanta, were received into regular membership.

Dr. Jolly then gave a talk on "Veterinary Operations," in which he advised avoiding tedious operations as unprofitable to owners. This opinion was the cause of much discussion, and Dr. Jolly was taken somewhat to task.

Dr. H. G. Carnes gave an interesting paper on "Shoeing for City Work and for Foot Diseases."

One of the most valuable papers was read by Dr. Ward Giltner, of Alabama, on "Diagnosis of Rabies," describing the method of locating Negri bodies in the brain.

Adjournment was taken for dinner, and arrangements made for a visit to the Pasteur Institute in Atlanta for treatment of rabies. At 2.30 P. M. the members went in a body to the Institute, and were shown through the various departments by the Superintendent, Dr. J. M. Brawner.

The members reassembled at the Kimball House at 4 P. M. for a business session. A bill to define and regulate the practice of veterinary medicine in Georgia and to create a Veterinary Examining Board, was read and approved, and put in further charge of the Legislation Committee to be enacted into law. A bill revising the statutes of Georgia relating to the control and suppression of contagious diseases and making an appropriation for the services of a State Veterinarian in the State Department of Agriculture was also read and approved, and a communication read from the officers of the Georgia Dairy and Live Stock Association to the effect that this bill would be introduced and urged before the Legislature by the latter Association.

By unanimous vote, the following names were added to the list of honorary members of the Association: Dr. Cooper Curtice, of the United States Bureau of Animal Industry, Raleigh, N. C.; Dr. C. A. Cary, State Veterinarian of Alabama and Professor of Veterinary Science in the Alabama Polytechnic Institute, Auburn, Ala.; Dr. Ward Giltner, Assistant State Veterinarian of Alabama, also at Auburn.

It was voted to hold the next meeting of the Association during the holiday week next December at Auburn, Ala., with the faculty of the new School of Veterinary Science there; unless for urgent reasons the officers should deem it necessary to call the meeting to convene in Atlanta again. Adjournment was taken at 8 P. M. C. L. WILLOUGHBY, *Secretary*.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

The Sixth Annual Convention of the Association, together with the State Board of Examiners, met in Charlotte, N. C., July 3 and 4, with President Roberts in the chair. The following officers and members were present: President, Dr. G. A. Roberts, Raleigh; Vice-President, Dr. W. C. McMakin, Raleigh; Secretary, Dr. Geo. Fleming, Winston; Treasurer, Dr. Adam Fisher, Charlotte; Drs. Tait Butler, Raleigh; T. B. Carroll, Wilmington; Fred Misenheimer, Salisbury; G. P. Cranford, Winston. Visitors—Drs. E. P. Henderson, U. S. Gov. Inspector; J. S. Butler, Raleigh; M. J. Ragland, U. S. Government.

The afternoon session was called at 1.30, when Mayor S. S. McNinch delivered an address of welcome, which was responded to by Dr. Tait Butler. The regular business was suspended for the afternoon in order that the State Board could examine the applicants for license. The following gentlemen presented themselves for same, were found proficient, and granted license: Drs. Fred Misenheimer, Salisbury; C. E. Smith, Newbern; Watt Ashcraft, Monroe; Roy Wolfe, Hickory; H. E. Hungerford, Washington, D. C.; J. W. Merritt, Wilson.

At 7.30 P. M., President Roberts rendered his remarks, touching upon various diseases met with in the State during the past year. There were no serious epizoötics of any description, but owing to the wet weather of the previous fall there followed an outbreak of mycotic stomatitis in nearly all the western and southeastern portions of the State. Naturally, the disease being a mild one, there was no difficulty in its eradication by preventing the cattle from gaining access to the pastures for the time being. With a great deal of moldy feed (and there was a large quantity of shelled corn shipped to North Carolina this season in this condition) we have had more or less trouble with mycotic poisoning cases. Dr. Roberts read a paper on tuberculosis, referring to many of the recent discoveries and calling particular attention to the fact that, in order to protect the public against tuberculosis, it was absolutely necessary to observe the utmost cleanliness in the cow-barn, as it has been demonstrated that the fæces from infected cows were loaded with the bacilli, and as dissolved cow manure is the nightmare of the milk inspector it behooves that individual to invent some practical plan to produce milk without that necessary (?) adjunct. The discussion

lasted until 11 o'clock, when the meeting adjourned to meet the next morning at 10 o'clock.

Dr. W. C. McMakin read his paper on "Injuries and Veterinary Surgery," remarking that the dissection of a dead animal does not necessarily qualify one to operate on the living, and that, for this reason, veterinary colleges should hold as many different operations during the school year as is possible, as it has been the Doctor's experience to find that young graduates know very little about operative surgery, due largely to the lack of such training while at college.

Dr. Tait Butler then spoke on the eradication of the Texas fever tick from North Carolina. The state authorities are being assisted by the Government, an appropriation having been made for that purpose. There are now about fifteen inspectors in the field. A house-to-house canvass is made in an infected district, and farms quarantined when infected. An emulsion of crude Texas Beaumont oil is sprayed over the cattle to kill the ticks and repeated in about three weeks, and then removed to another pasture according to the starvation method. Veterinarians must assist in educating the public in tick eradication, as there is always more or less opposition when a farmer does not understand why it is necessary to work with his cattle when he has seen ticks on them all their lives. Nearly eight counties below the line are now being worked. Dr. Butler said if the U. S. Government would appropriate the money, the ticks could be eradicated from the United States in ten years, and as the price of beef from below the line is from one to two cents a pound less than that above, it is obvious what this would mean to the South.

Dr. E. P. Henderson then briefly outlined the work in the state as directed by the Bureau.

The following officers were elected for the ensuing year:

President—G. A. Roberts.

First Vice-President—W. C. McMakin.

Second Vice-President—Watt Ashcraft.

Secretary—Adam Fisher.

Treasurer—B. L. Griffin.

Drs. Roy Wolfe, J. W. Merritt, C. E. Smith, H. E. Hungerford and Watt Ashcraft were elected members of the Association, while Drs. E. P. Henderson, J. S. Butler, M. J. Ragland, A. J. Kiernan and Harry Caldwell were elected honorary members.

The convention adjourned at 5 P. M., July 4th, to meet in Raleigh, N. C., July 2d and 3rd, 1908.

A. FISHER, *Secretary.*

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The tenth semi-annual meeting was held at the Veterinary Hospital of Dr. Tegg, on Thursday, July 12, 1907. Meeting called to order by Dr. Warren E. Stocking, President, at 10.30 o'clock when the following members responded to the roll-call:—Drs. J. C. McKenzie, L. R. Webber, W. G. Dodds, O. B. French, J. H. Taylor, P. J. Johnson, A. Geo. Tegg, W. B. Switzer, G. C. Kesler, Nelson N. Lefler, D. P. Webster, Warren E. Stocking, W. J. Payne, J. E. Smith, W. H. Salisbury, Carr Webber, F. D. Holford, John W. Corrigan, W. F. Woolston, John O. Moore, William H. Mahony, Newel D. Backus, and E. H. Nodyne. Visitors:—William Henry Kelly, F. E. Cleaver, H. A. Turner, B. M. Weller, A. E. Merry, Frank Tegg and George Ross.

After a brief business session a clinic was held, consisting of three ovariectomies, one poll-evil, one fistula in the flank, the sequel of puncture of the bowel; three tails straightened, one caudal myectomy to prevent gripping of the reins, one side-bone fired and blistered, one shoe-boil removed, and four operations on dogs—fifteen operations, besides several cases for examination.

A luncheon was furnished in the office for all at noon, which was disposed of in half an hour. The entire time from 11 o'clock until 5 was taken up with the clinic.

The meeting then adjourned to the Rochester Club, where an informal reception was held until 6.30, when a banquet was given, at the conclusion of which the President gave a short address, followed by several members.

W. B. Switzer reported a case of obstruction of the bowel caused by four large hair-balls, two of which were exhibited; the four weighed ten pounds.

Dr. J. W. Corrigan reported a case of caries of the first molar in a horse, the cavity connected with the nasal cavity. If the nostrils were closed the horse breathed through his mouth.

When he drank, the water escaped through the nostril. The cavity was cleansed and filled with a composition, which hardened firmly and perfected a cure.

Dr. Corrigan also read the following report:

GLASS EYE FOR A HORSE.

"Last spring a client had a very fine pony, which while eating punctured the cornea, with a nail that was in the side of the manger, allowing the humors of the eye to escape. A portion of the iris also came through the wound. I was called to see what could be done; decided to cut off a portion of the exposed iris and allow remaining portion of the eyeball to granulate and see how it would end. The result was a red, sunken mass where the eyeball should be and a corresponding shrunken condition of the eyelids. In looking at it the other day, I became imbued with the idea of a glass or porcelain eye. Getting the assent of the owner to try one, I sent to an instrument house, describing the other eye as nearly as possible as to color, and to-day the eye came. It fitted beautifully and at a casual glance would puzzle a professional to tell the false eye. I merely inserted it inside the lids over the membrana nicitans, and I do not know when I have done such a satisfactory (to me, at least) job, as before the pony was a sorry sight, and now can go into a show ring. I have seen many good horses with one bad eye sacrificed, but I shall try the glass eye in these cases if I get the chance, and would advise others to try the same scheme."

Dr. Lefler then spoke on lead poisoning, citing a number of cases that he had had in his practice; also a case of santonine poisoning.

Dr. Smith reported a case of arsenic poisoning.

Dr. Nodyne read an essay on "The Dog, Man's Most Faithful Friend."

Dr. L. R. Webber spoke on purpura hæmorrhagica; had used the antistreptococcic serum faithfully with unsatisfactory results, and had gone back to the old line of treatment—quinine, iron, chlorate of potash, and turpentine. Dr. J. Moore had gotten good results from the use of adrenalin chloride.

Dr. A. Geo. Tegg spoke on lympangitis, having treated a great many cases during the past six months; he had examined them carefully, and only in one case of acute lympangitis could

he find any wound or indication that it was due to wound infection.

Dr. E. H. Nodyne thought 90 per cent. of his cases resulted from dietetic troubles, and the other 10 per cent., from wound infection, the cases of infection being clearly indicated by the acute inflammation and tenderness, beginning at the point of infection.

Dr. John O. Moore spoke on lacerated wounds of the tendinous sheaths.

Dr. Carr Webber spoke on castration.

Dr. A. Geo. Tegg reported a case of a horse showing decided brain symptoms from pus in the frontal sinus. Trephining gave immediate relief.

Dr. Carr Webber had a case of meningitis in a cow. Postmortem showed it due to infection through a wound in nasal cavity.

Receipts of meeting $36. This was the most successful meeting of the Association. There were three applications for membership. Meeting adjourned to meet again in January.

J. H. TAYLOR, *Secretary.*

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The annual meeting of the New York State Society will convene at the Academy of Medicine, 17 W. 43d Street, New York City, on Tuesday, Sept. 24, at 10 o'clock and will be called to order by President W. L. Williams. A few words of welcome to Gotham will be expressed by President Bell, of the Veterinary Medical Association of New York City, whose guests the State Society will be. It is expected that the business of the Society, reports of committees and county secretaries will consume the major portion of the first day.

The second day's session will convene at the New York Zoological Park, 183d Street and Southern Boulevard, and if the weather is agreeable the meeting will take place upon one of the shady lawns; if it be unpropitious, in one of the well adapted halls. The literary program will then be taken up, and, although the REVIEW has not been informed of all the papers that are expected, Secretary Stone has supplied us with

enough to insure a season of great profit and interest to veterinarians in whatever field they may labor. Some of the subjects and essayists are as follows:

"Mallein vs. the Agglutination Test," Dr. H. D. Gill, New York City. Autopsies and Pathology, by Dr. W. Reid Blair.

"Notes on Tuberculin Test," Dr. H. D. Gill.

"Dairy Inspection," Dr. W. G. Hollingworth, Utica, N. Y.

"Control of an Anthrax Outbreak," Dr. S. H. Burnett, Ithaca, N. Y.

"Milk as a Human Food," Dr. Claude D. Morris, Binghamton, N. Y.

"Toxins and Antitoxins," Dr. V. A. Moore, Ithaca, N. Y.

"Resection of the Flexor Pedis Perforans Tendon for Infected Navicular Bursæ," Dr. Ray W. Gannett, Brooklyn, N. Y.

"Experiences with the Agglutination Test in Large Outbreaks of Glanders," Dr. George H. Berns, Brooklyn, N. Y.

It is expected that Dr. Leonard Pearson, State Veterinarian of Pennsylvania, will be present and address the meeting at one of the sessions.

This Society has gained a world-wide reputation for the excellence of its clinical demonstrations, and it is confidently anticipated that the clinic of 1907 will equal or excel any that have preceded it. The large Veterinary Hospital of the Fiss, Doerr & Carroll Horse Company, 24th street, near Third avenue, has for the third day been placed at the disposal of the Society. Dr. J. Elmer Ryder, veterinarian of this extensive establishment, is a member of the Local Committee of Arrangements, and, assisted by a number of the most prominent practitioners of the city, abundant material of the most interesting and valuable kind will be provided for the occasion. An effort will be made to demonstrate only those operations which are most useful in practice, and will be undertaken by surgeons whose experience and success qualify them.

While it is not necessary here to give details of the social features of the meeting, it may be stated that veterinarians who bring with them lady members of their families may be assured that their pleasure and comfort have been well anticipated.

B. A. I. VETERINARY INSPECTORS' ASSOCIATION OF CHICAGO.

At the regular monthly meeting of this Association, held July 12, Dr. W. M. Cummins described in a very interesting

paper the character of work an inspector has to perform on the range in eradicating as well as in preventing the spread of scabies in sheep. Although nothing especially new was brought forward, the doctor presented from his actual experience in the field some facts well worth remembering for an inspector, whose future duties may be along this line of work.

Dr. M. Guillaume, in behalf of the Committee on Food-Hygiene, gave a very interesting sketch of how milk inspection is carried on in a large city like Chicago. There is evidently a great field for improvement in this branch of public hygiene; and a milk inspection, short of compulsory testing with tuberculin of all herds contributing to a city's supply, is, in the doctor's opinion, very inadequate, to say the least.

* * *

The August meeting was held on the 9th. Dr. A. L. Faunce, for the Committee on Food-Hygiene, presented a paper treating of oleomargerine as a foodstuff. The doctor gave a short history of how it is manufactured and its use as a substitute for butter, and seemed to be of the opinion that when wholesome oleomargerine in many instances is preferable to butter, especially when compared to the poorer grades of the latter. In the discussion following, Mr. Morris very ably described the various tests, household as well as chemical, and in differentiating the two products; also several methods by which the presence of coloring agents could be detected.

Dr. Sigmund read a short paper on "Traumatic Pericarditis."

J. MASSEN, *Secretary.*

MICHIGAN STATE V. M. ASSOCIATION.

At a meeting of representative members of this association, held at Detroit on July 24th, it was decided to dispense with the summer meeting this year, for reasons that will be made known at the next annual meeting, which will be held at Lansing, Feb. 4 and 5, 1908.

THE OKLAHOMA V. M. ASSOCIATION

will hold its annual meeting at Shawnee, on Sept. 19, and Secretary Martin extends an invitation to all home and neighboring veterinarians, as a good program has been arranged.

NEWS AND ITEMS.

DR. F. W. WESTON, Dickinson, N. D., died May 30.

E. J. ROBBINS, D.V.S., Bay Shore, L.I., is Secretary of the Willow Brook Driving Park, Islip, L. I.

R. J. BOSE, D.V.S., Troy, N. Y., sailed for Paris the latter part of July.

DR. AND MRS. NELSON P. HINKLEY, of Buffalo, N. Y., celebrated the twenty-fifth anniversary of their wedding, at Glen Rose Farm, West Falls, N. Y.

HOW FIDO GOT INDIGESTION.—Bess: I can't ride. I'm ill. I've sent for a doctor. Flossy: Not that handsome one Fred pointed out to us yesterday? Bess: Yes. He's coming directly. Flossy: Then, you just tear into your clothes and feed Fido the cake and jam he'll eat. *That doctor is a veterinary.*

PROSECUTING AN ILLEGAL IN MANITOBA.—At Crystal City, on Friday, July 26, Frederick Watkinson was convicted before Police Magistrate Colter of practicing as a veterinary surgeon without the necessary qualifications. As this was his second offence, he was fined $50 and costs, or one month in jail. The Veterinary Association of Manitoba gave the information.

MRS. ADOLPH LADENBURG, a wealthy New York society woman, fond of animals, has imported some "Kerry" cows from Ireland, and will breed them on her Long Island estate. They are native of the mountainous sections of Ireland, are no larger than Shetland ponies, will live on food that would starve other breeds, and are said to reproduce their own weight in milk fifteen times yearly, while the large breeds only give about five times their weight.

WILLIAM PALLIN, F.R.C.V.S., of Athgarvan Lodge, County Kildare, Ireland, died in London, June 8, 1907. He graduated from the Dick Veterinary College, Edinburgh, in 1863, became Vice-President of the Royal College of Veterinary Surgeons, a Fellow in 1896, and Examiner in Veterinary Hygiene in 1898. He practiced for a while and then entered the Army in 1871, serving until the close of the Boer War, when he resigned and devoted his time to his Irish estate, where he was an extensive breeder of race-horses.

THE BRITISH ARMY VETERINARY SERVICE.—The REVIEW will publish in its next issue the report of Veterinarian Coleman Nockolds to the Adjutant-General of the U. S. Army, on the organization and conduct of the British Army Veterinary Department. It is a thorough analysis of the subject, and Dr. Nockolds takes occasion to make some important recommendations for the betterment of the service in our own Army. He shows that the weakest link in the chain is the absence of rank, which destroys authority and position.

A RECORD LIVER AND SPLEEN.—While the great and lamented "Sysonby" held the record as a speedy race-horse and winner of purses, it appears that he does not hold the record for the size of his liver, for while that organ in the great thoroughbred weighed 65 pounds, an Ohio horse has quite eclipsed this. At the January meeting of the Ohio State Veterinary Medical Association, Dr. F. E. Anderson, of Findlay, reported the holding of a post-mortem upon a horse whose liver weighed 105 pounds and whose spleen weighed a little over half as much. Details may be found in this number of the REVIEW in the department of "Society Meetings."

LICENSED TO PRACTICE VETERINARY MEDICINE IN THE STATE OF NEW JERSEY.—Dr. William Herbert Lowe, President of the State Board of Veterinary Medical Examiners of New Jersey, advises the REVIEW that the following gentlemen successfully passed the recent State Examinations and have been duly licensed to practice veterinary medicine in the State of New Jersey:—Francisco P. Boulanger, D.V.S., New York University, N. Y. A. V. C., Union Hill, N. J.; Ronald W. Butterworth, D.V.S., New York University, N. Y. A. V. C., North Haledon, N. J.; Harold N. Guilfoyle, D.V.S., U. S. College of Veterinary Surgeons, Norwood, Pa.; Oliver T. Hendren, V.M.D., University of Pennsylvania, Roxborough, Philadelphia, Pa.; William A. Haines, V.M.D., University of Pennsylvania, Bristol, Pa.; Lambert Rudolf Albert Iskraut, D.V.M., Royal Veterinary High School, Hanover, Germany, Fort Lee, N. J.; Charles Labash, D.V.S., Kansas City Veterinary College, Passaic, N. J.; Walter G. Morehouse, D.V.M., Cornell University (N. Y. State Veterinary College), Asbury Park, N. J.; Chas. C. Schloemer, V.M.D., U. of Pa., New York City; Frank A. Wright, V.M.D., U. of Pa., Mount Holly, N. J.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n	Sept. 10-13, '07..	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.	Jan. 9, 1908....	Trenton.....	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n	1st Tu. Feb....	Hartford	B. K. Dow, Willimantic.
New York S. V. M. Soc'y	Sept. 24, 25, 26...	New York C'y.	G. T. Stone, Middletown.
Schuylkill Valley V. M. A	Dec. 18, 1907....	Reading	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n	Monthly.....	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n	Monthly.....	Boston.....	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n	....	Ottawa	A. E. James, Ottawa.
Michigan State V. M. Ass'n	Feb. 4-5, 1908 ...	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C	April, 1908.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n	.....	.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad	.....	....	S. Beattie, Madison.
Illinois V. M. and Surg. A	.....	Decatur.....	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n	July 2-3, 1908...	Raleigh	Adam Fisher, Charlotte.
Ontario Vet. Ass'n	Summer, 1907...	Ottawa	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City	1st Wed., Oct...	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n	.....	Columbus.....	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n	Sept. 9, 1907	Kansas City..	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n	January, 1908...	Rochester.....	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n	....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n	.....	.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A	Sept. 3.....	Harrisburg ...	C. J. Marshall, Philadelphia.
Keystone V. M. Ass'n	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n	.....	Denver	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	Sept. 9, 1907	Kansas City..	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n	June and Dec...	Providence ...	T. E. Robinson, Westerly, R.I.
North Dakota V. M. Ass'n	....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n	Mch. Je. Sep. Dec	San Francisco	Chas. Eastman, San Luis [Obispo.
Southern Auxiliary of California State V. M. Ass'n	Jan. Apl. Jy. Oct .	Los Angeles..	J. A. Edmons, Los Angeles.
South Dakota V. M. A	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n	.....	.....	Hans Jenson, Weeping Water.
Kansas State V. M. Ass'n	Jan., 1908... ...	Manhattan ...	Hugh S. Maxwell, Salina.
Ass'n Médécale Veterinare Française "Laval"	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n	Nov. 19, 1907....	Not decided ..	D. A. Piatt, Lexington.
Washington State Col. V. M. A	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association	An'l, Jan., '08...	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n	2d Thu. ea. mo .	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n	Xmas week.....	Auburn, Ala..	J. C. Robert, Agricultural Col.
Georgia State V. M. A	.....	.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn	June, 1908.....	Philadelphia..	B. T. Woodward, Chicago.
Virginia State V. M. Ass'n	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n	Sept. 19, 1907...	Shawnee.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club	Monthly	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia	Last W. ea. mo.	2116 14th St...	F. M. Ashbaugh, Wash., D. C.
B. A. I. Vet. In. A., Chicago	2d Fri. ea. mo...	Chicago.....	R. J. Stafford, U. S. Yards.
Arkansas Veterinary Society	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. S	Sept. 3.....	York, Pa.....	E. S. Bausticker, York.
Philippine V. M. A	.....	....	R. H. McMullen, Manila.
Montana State V. M. A	Oct. 2, 1907.....	Helena.....	E. T. Davison, Helena.
Veterinary Ass'n of Alberta	.....	.....	C. H. H. Sweetapple, Fort Saskatchewan, Alta., Can.

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We are in receipt of the inclosed paragraph on ICHTHYOL from Gehe's Handelsbericht, 1907, through the courtesy of Merck & Co., New York, and insert it for the benefit of our readers; as it contains information of interest and importance to practitioners who prescribe this medicament.

ICHTHYOL maintains its position in spite of the increased competition caused by the introduction of substitutes during the past year. Extensive scientific researches, both chemical (Thal, Lüders) and therapeutic (Schwarzenbach, Goldman, Hirschkron, Brodsky), have demonstrated that the substitutes are not equivalent to ichthyol in action or composition. Moreover, in the United States, where it was attempted to pass the ichthyol substitutes under the tariff as being identical with ichthyol, the Board of General Appraisers decided that these substitutes differed from ichthyol in many respects, and could therefore not be passed as ichthyol. It would be advisable therefore to avoid any claim that the so-called substitutes are identical with ichthyol.—*Gehe's Handels-Bericht*, 1907.

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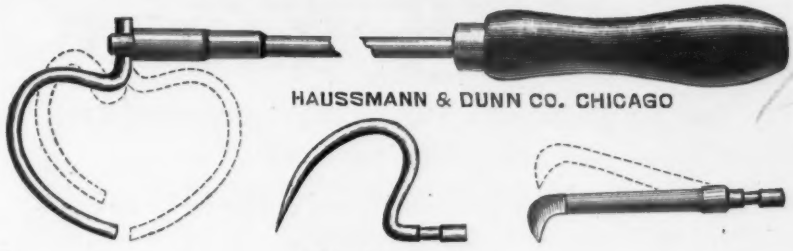

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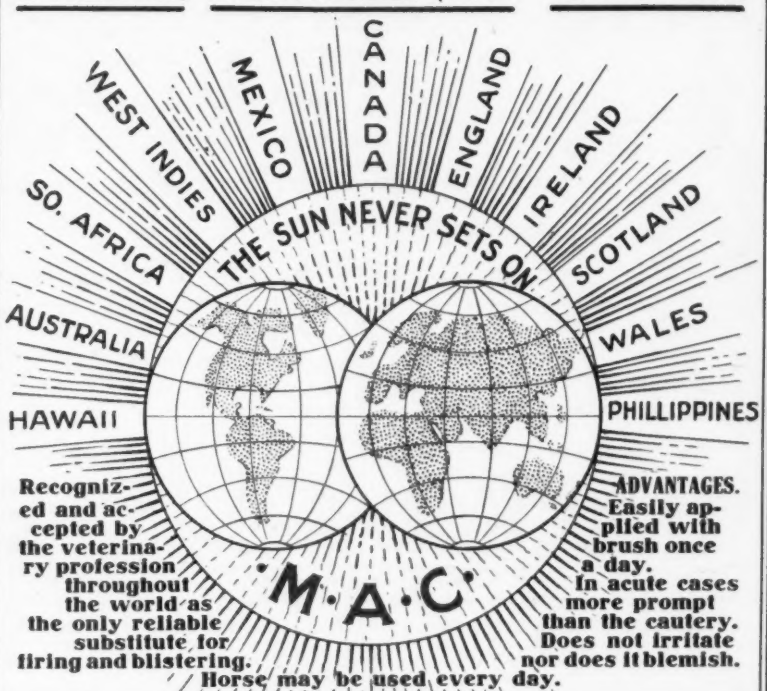

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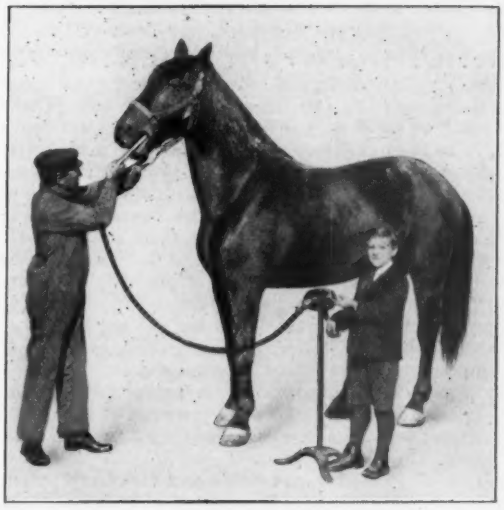

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Veterinary Dentistry is revolutionized by a new "float," constructed on a principal entirely different from anything ever before offered to the veterinary profession. The head of the float consists of four parallel cutting rollers, arranged transversely to the handle of the float, in such a manner, that while all four are equally distant from each other, they represent two pairs, the rollers of each pair revolving towards their fellow; the cutting grooves on each, leaning in the direction that it rolls; so that, as the cutters revolve, the tendency is to cling to, and cut, the surface over which they are passed. The depth of the cutting is so regulated, that it cannot exceed a certain amount at each application; so that the work may be done in a positive manner. The float is driven by a small hand-motor six inches square, strapped to a post of the stall in which the horse is backed for operation upon the teeth. The motor can be operated by a stable boy, or anyone, regardless of intelligence, and produces from one to two thousand revolutions of the cutters per minute, as the operator may direct. The power is transmitted from motor to instrument, through a very light, jointed shaft, permitting free movements of the instrument, by the operator, in any direction. No cumbersome clipping machine necessary for power.

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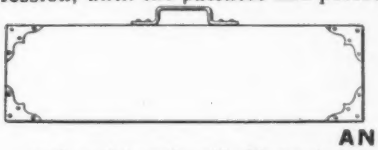
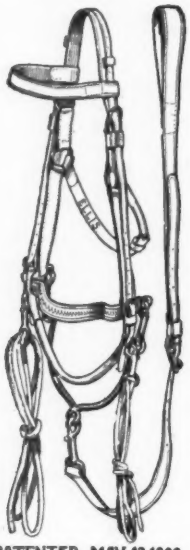


AND THE

"Combination" Veterinary Dental and Surgical Halter.



PATENTED MAY 13,1902.

The features which make it the halter par excellence for operations upon the teeth are, A, the "lip strap," to which the pillar or side reins are attached, which suspend the head at the proper height, and prevent it from going to one side or the other, and B, the non-compressible, metal, **heavily padded** "nose band," with offsets, keeping the cheek pieces of the halter 2½ to 3 inches from the cheeks, thus avoiding any interference whatever with the dental instruments while being employed upon the teeth. This excellent adjunct to the Veterinarian's outfit, is made of the very finest of russet stock, with brass mountings throughout. The cheek pieces are very strong, being double; the lip strap is covered with fine white rubber; the strap buckling into it being finished rawhide. The piece into which the substantial martingale is snapped, is of forged steel, heavily coated with aluminum enamel, which is rust proof. Altogether, it is a handsome, and from a practical standpoint, indispensable appliance in veterinary dentistry.

Directions for its application.

After backing the horse into his stall in the usual manner for work upon the teeth, drop off the stable halter and apply the "Combination" halter to the head; unbuckle the lip-strap on one side, and pass it **inside the nose-band,** under the upper lip over the incisor teeth and buckle quite tight. Elevate the head by fixing the side or pillar reins to the stall-posts on each side as high up as you can reach; raising the nose a couple of feet higher than you desire it for operating; then tighten the strap leading to the surcingle which is provided with a buckle, thereby lowering the nose to a height convenient to the operator, and he positively cannot move, and you can operate upon the teeth with an ease and precision that is most satisfying.

(*For side-lines, 5 yards sash-cord, cut in two, snaps on one end.*)

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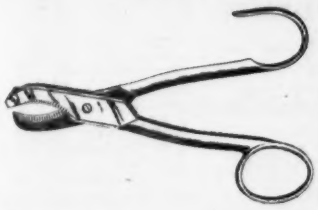

This Emasculator was devised for the purpose of castrating and spaying small animals. The movable blade is solid and passes part way through the stationary blade which is fenestrated. One edge of the stationary blade is rough and the other edge sharp, in short it is exactly the same pattern as the larger instrument used for castrating large animals except that it is made with scissor handles to allow of its easy manipulation. It is the *best canine emasculator* in the market for the money. Each instrument guaranteed to give perfect satisfaction or money refunded. Mailed upon receipt of price, **$3.50.**

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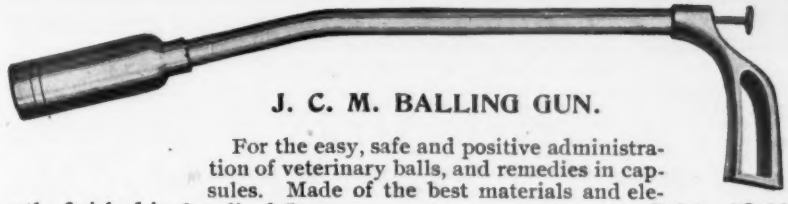

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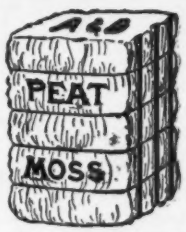

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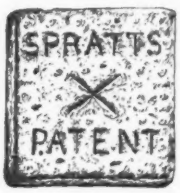

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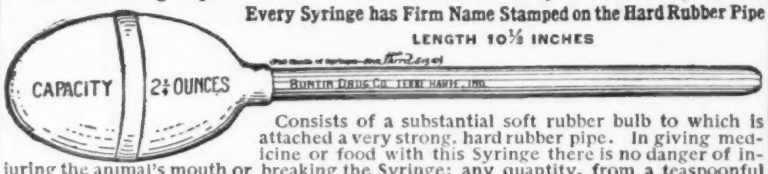

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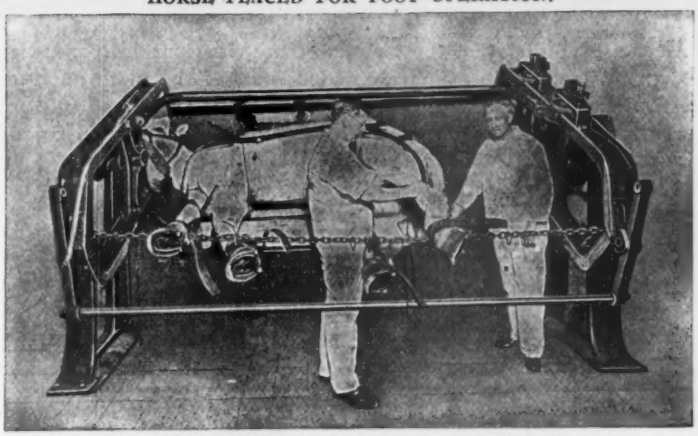

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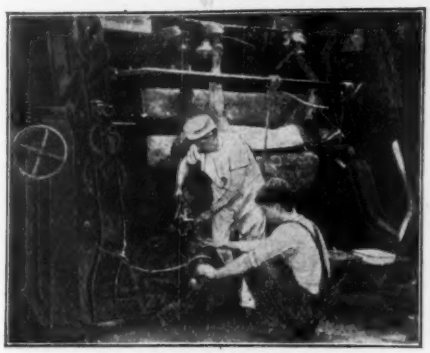

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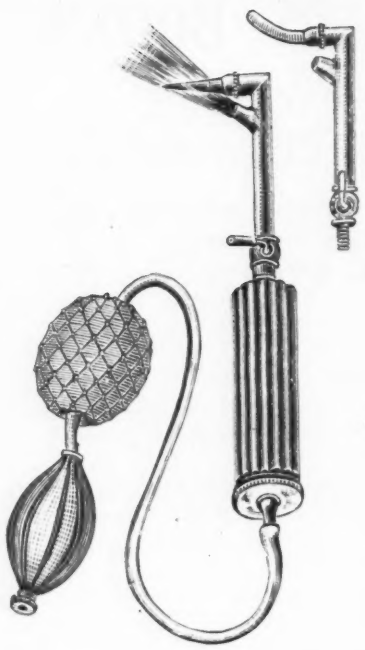

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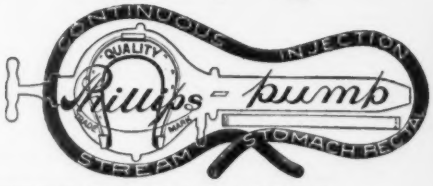

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